THE IRON TRADE REVIEW

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Opinion Splits on Stabilizing Plan

Buyers and Sellers Do Not Agree Over Practical Benefits Likely to Result from Government Proposal—Talk of Reductions Tends to Produce Greater Price Unsettlement and to Accent Trade Timidity

DIVIDED opinion prevails in the iron and steel industry over the general practicability and probable outcome of the price stabilizing plan of the government, the details of which are yet to be made known clearly. Recognizing plainly that further reductions may be necessary to bring the readjustment process to completion, various interests feel any form of artificial regulation at this time only will interfere with ultimate liquidation and will tend to prolong the normal restoration of business activity. Curiosity has been aroused as to just how price determination by suggestion can be distinguished essentially from deliberate price fixing. Manufacturers of pressed metal goods representing 600,000 tons of annual purchasing power in steel have recorded themselves in the negative as to the wisdom of Secretary Redfield's proposal. Secretary Redfield has disclaimed any knowledge of a reported request that manufacturers of car parts shall name absolute cost prices to the railroad administration to stimulate new purchases.

Prices Not So Firm

The new government proposals naturally have brought price questions more squarely to the front and have not been conducive to the emboldenment of already timid buyers. In fact the announcement appears to have produced more unsettlement of the hitherto well-sustained price situation. The week has developed more definite instances of shading on the part of a few producers. Sales of slabs have been made to consumers at Cleveland at $5 below the market, while buyers in the automobile trade have been able to develop concessions of from $1 to $3 a ton on heavy sheets, light plates and merchant mill lines. Some of these cases are understood to have been made under cover of a manipulation of extras. There is also some irregularity in hot rolled strip steel prices. Few if any instances where concessions are being allowed by the larger producers, are coming to light and shading generally is confined to mills in need of orders.

Buying is Spotty

Notwithstanding the emphasized uncertainties as to prices, signs of a better tone in buying of certain steel products have persisted. The automobile industry has continued to buy sheets and some other lines on a liberal scale although everywhere quick shipment has been required. Some of the smaller sheet mills have accumulated several months' orders. Sheet mill operations, however, show considerable disparity, due to the degree that the individual plants are fitted to meet the requirements of the automobile field. Tin plate reflects improvement. Merchant bar shipments to the tractor, farming implement and other branches of consumption in middle western and western territory have been surprisingly good.

While the Steel corporation mills have been passing more tonnage through their warehouses, this necessarily is of limited amount. Hence the report that the unusually favorable operations of that interest may be explained by heavy shipments to stock and not to consumptive needs is purely a presumption and not a fact.

Export Sales Limited

The export market continues to be marked by a heavy inquiry but negotiations are very deliberate and sales are coming slowly. British requirements for a large tonnage of basic pig iron again are under discussion, but it is stated the business is dependent upon the time when a lower freight situation prevails. Just at the armistice period, the British government was seeking 750,000 to 1,000,000 tons for 1919 delivery and something like these totals is being mentioned in the present reports. The Imperial Railways of Japan are seeking 10,000 tons of rails. The Inland Steel Co. has booked several thousand tons of plates, shapes and bars for Holland. England has bought 1000 tons of wire rods.

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Market Fixing by Suggestion

AFTER having enjoyed the stability and composure resulting from out-and-out price fixing during the war period, the iron and steel market is now to be subjected to a policy of price suggestion. This, in substance, is the proposal which Secretary Redfield soon is to lay before the iron and steel and other basic industries of the country as a result of a cabled approval from the President the past week of the so-called stabilizing plan. Secretary Redfield insists that the method he advocates is not price fixing in any sense of the term but is in reality the ascertainment of a market level at which business would be encouraged to proceed freely. Therefore, there is no likelihood of its running afoul of the provisions of the Sherman and other antitrust acts prohibiting price collusion. Secretary Redfield states that his plan purely is a matter of consent and not one of authority. "It merely seeks that men shall agree to that thing soon which economical law requires sooner or later," he explained in an address the past week. Price matters are to be handled through an official body made up of representatives of the government, capital and labor on those most vitally interested.

While the new price proposal may not be price fixing and in some respects is novel, it has certain main points of similarity to the plan that Judge Gary attempted to lay before the price-fixing committee of the war industries board on Dec. 11 last. At that time Judge Gary, speaking for the iron and steel industry, sought the fixation of a reduced level of prices to apply to the first quarter. The price-fixing committee, however, by reason of the termination of the war industries board Jan. 1, disclaimed any jurisdiction to give official standing to these quotations. The reduced prices suggested by Judge Gary now are prevailing by reason of their universal acceptance in the industry. They have effected business stability to a degree by providing an orderly and uniform action of the market. Both the Redfield and Gary proposals were directed at the stabilization of industry and the establishment of confidence. The conclusion cannot be escaped that if the government had seen fit to take up the suggestion of the industry itself in December and which in a large measure it now is advocating, valuable time would have been saved and much progress would have been made by now toward the goal of stimulated business. If after all, the market really requires artificial guidance in the readjustment period, confidence in prices could have been won then more readily than now after weeks of rising caution and increased hesitation. It remains, however, a debatable question whether any form of market supervision at present is best for the industry in the end since it still will leave uncertain whether genuine deflation has been accomplished.

At best the Redfield plan is an experiment and a most interesting one. In contrast with the scheme of control during the war which fixed maximum levels to prevent extravagant prices it aims to define a minimum basis at which liberal buying may begin. In other words it seeks to establish a real market and not a structure of prices. There cannot be a real market however unless labor makes its just contribution in the writing down process. Whatever success the plan may attain will turn largely upon the attitude of labor since that will be a major factor in determining the point down the scale at which producers may go to bid for restored confidence.

A Commendable Undertaking

PLANS of so-called progressive United States senators to tour the country after March 4 to combat what is styled the "creeping peril of bolshevism" are entirely commendable. Americanism is to be the doctrine taught and it is a doctrine that might well be taught at all season, for it is never out of style. At the same time it is to be sincerely hoped that these so-called progressives

will stick to their subject and not digress by attempting to give a political complexion to their efforts. And, it may be said, there is no reason to think they will do this. If they spread the doctrine of Americanism properly, the political situation will take care of itself with justly deserved benefits to them. The line of campaign already laid out is entirely sound.

It runs something like this:

"Sit tight. This is still a government of the people. You can do whatever you want to with your government, without inaugurating a reign of bloodshed, wholesale assassination and destruction of property. You have the ballot. Upon your use of it depends the measure of your freedom, your happiness and prosperity."

No right thinking American imagines for an instant that the country is to be plunged into any "reign of bloodshed" or other widespread reign of violence. The fact remains, however, that evil forces are at work, quietly and publicly, which may be the means of considerable disturbance to the industrial and social life of the United States. Therefore the tocsin of Americanism is ever desirable, and more so now than in ordinary times. Those who dislike that doctrine must be kept in restraint, and those who do not fully understand or are indifferent, must be taught. It cannot be too strongly emphasized in instructing this element that it is absolutely necessary to put the interest of America before that of any other nation.

The Seattle shipyard strike situation has been viewed by some members of congress, including Senator Thomas of Colorado, as an attempted beginning of the spread of bolshevism, and his strong condemnation of the strikers and their amazing claims is well taken. The Seattle disturbers fortunately came up short against a courageous mayor and were effectively handled. They did raise however, to the public view, for an instant at least, the slimy form of a deadly serpent which has no place in this country and must be set upon vigorously every time it raises its poisonous head. These "reds", I. W. W.'s, and other exponents of crime and bloodshed, must be made to learn the lesson of true Americanism and that, without waiting for the senators to begin their campaign, desirable as it is.

To Cut or Not to Cut

TO cut or not to cut; that is the question that now confronts sellers of iron and steel and related products. Whether it be better to suffer buyers to remain indifferent toward the market because they regard prices as too high; or by reducing quotations seek to cut short the weeks and possibly months of indifferent activity. This is not merely a travesty of Hamlet's soliloquy; it is a fairly complete picture of the workings of the minds of a good many producers. Of course the suggestion of lower prices will bring out the claim that a reduction would only make buyers more cautious and it is a well established fact that many producers are adhering to their quotations merely because they fear a cut only would make matters worse.

Whether or not this fear is well grounded is not easily determined, for the reason that no really definite knowledge exists as to how much of a concession would have to be made to interest consumers to the extent of freer purchases. All buyers do not view the situation in exactly the same light; there is no such thing as agreements among them not to buy a commodity or commodities until a certain price is reached and a reduction in steel prices may be put down as certain to bring about some buying that now is being deferred. Real buying movements always have a small start, for shrewdness is not monopolized by the big consumers. The argument that a cut in prices would not have any more than a temporary effect upon the demand is not altogether sound.

An attempt has been made to bring steel prices back to normal levels in an orderly way. Success cannot be said to have attended this effort, nor does it seem at all likely of success, for the movement involves a suspension of the law of supply and demand. It must be patent to all who will see that current prices are not based on the natural operation of the law of supply and demand. Rather, they are based on the fact that a drop would affect labor and employers fear labor troubles in the event of lower wages.

While industrial turmoil is to be deplored and if possible avoided, it is open to question whether or not the rigid adherence to prices above which buyers will take hold freely is not more inimical to wage earners than would be an outright reduction in their remuneration. In other words, labor troubles are just as likely to occur from idleness among workmen as from a wage cut.

Labor has profited by the period of high steel prices as much as has capital and should now be prepared to make a joint sacrifice with capital, for it is just as much to the interest of the workmen as to the employers that the plants be kept as fully occupied with business and the attainment of this condition seemingly is possible only through lower prices for the manufactured material. Workmen cannot expect capital to make all the sacrifice that would be involved in maintaining present wages and at the same time cutting selling prices of the manufactured article. And voluntary acceptance of a cut would mean happier conditions than forced liquidation which looms as a possibility through the release of thousands of men from war plants and the demobilization of the army.

Iron and Steel Prices

Corrected to Wednesday Noon

SCRAP, WAREHOUSE AND IRON ORE PRICES PAGE 542

Pig Iron

Bessemer, valley	$32.20
Bessemer, Pittsburgh	38.60
Basic, Pittsburgh	31.40
Basic, valley	30.00
Basic, delivered eastern Pa.	33.90
Basic, Buffalo, furnace	30.00
Malleable, Pittsburgh	32.90
Malleable, Chicago, furnace	31.50
Malleable, Buffalo, furnace	31.50
Malleable, delivered eastern Pa.	35.40

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern	2.25 to 2.75
No. 2X Eastern and Virginia	2.25 to 2.75
No. 1X eastern	2.75 and up
No. 1 Chicago	2.25 to 2.75
No. 2 plain eastern	1.75 to 2.25
No. 1X, eastern delivered Phila.	37.90
No. 2, valley, Pittsburgh	32.40
No. 2 foundry, Cleveland furnace	31.00
No. 2 foundry, Ironton furnace	31.00
No. 1 foundry, Chicago furnace	32.25
No. 2 foundry, Chicago furnace	31.00
No. 2X, eastern del., Phila.	36.15
No. 2X, eastern, N. J. tidewater	35.25
No. 2X foundry, Buffalo furnace	32.25
No. 2 plain, del. Philadelphia	34.90
No. 2 plain, N. J. tidewater	34.00
No. 2 southern, Birmingham	32.25
No. 2 southern, Cincinnati	35.85
No. 2 southern, Chicago	37.25
No. 2 southern, Phila.	38.75
No. 2 southern, Cleveland	37.25
No. 2 southern, Boston	40.25
No. 2 southern, St. Louis	35.40
Virginia, No. 2X, furnace	32.25
Virginia, No. 2X, Phila.	36.35
Virginia, No. 2X, Jersey City	36.65
Virginia, No. 2X, Boston	36.95
Gray Forge, valley, Pittsburgh	30.40
Gray Forge, eastern Pa.	33.90
Silveries, 8%, furnace	44.50
Ohio Silveries, 8%, Chicago	47.80
Tennessee Silveries, 8%, Chicago	48.50
Low phos. standard, Phila.	51.00
Low phos. Lebanon, furnace	48.00 to 50.00
Low phos. standard, Pittsburgh	51.40
Charcoal, Superior, Chicago	38.70

Coke

(At the ovens)

Connellsville furnace	$4.00 to 5.00
Connellsville foundry	5.00 to 6.00
Pocahontas furnace	3.00
Pocahontas foundry	3.00
New River foundry	3.00
New River furnace	3.00
Wise county furnace	7.25
Wise county foundry	8.25

Ferroalloys

Ferromanganese, 70 per cent delivered	$200.00
Spiegel, 16 per cent fur., spot	57.00 to 60.00
Spiegel, contracts, furnace	nominal
Ferrosilicon, 50 per cent, spot and contract, delivered	125.00 to 135.00
Ferro carbon-titanium, carloads, producers plant, per net ton	200.00
Bessemer ferrosilicon, 10 per cent	54.00
Bessemer, ferrosilicon, 11 per cent	57.30
Bessemer, ferrosilicon, 12 per cent	60.60

Ferrosilicon prices at Ashland, Ky., Jackson and New Straitsville, O.

Semifinished Material

BILLETS AND BLOOMS

Open-hearth, Pittsburgh	$43.50
Open-hearth, Philadelphia	47.50
Open-hearth, Youngstown	43.50
Bessemer, Pittsburgh	43.50
Bessemer, Youngstown	43.50
Forging, Pittsburgh	56.00
Forging, Philadelphia	60.00

SHEET BARS

Open-hearth, Pittsburgh	$47.00
Open-hearth, Youngstown	47.00
Bessemer, Pittsburgh	47.00
Bessemer, Youngstown	47.00

SLABS

Pittsburgh and Youngstown	$46.00

WIRE RODS AND SKELP

Wire rods, Pittsburgh	$57.00
Grooved skelp, Pittsburgh	2.70c
Sheared skelp, Pittsburgh	3.00c

Shapes, Plates and Bars

(In cents per pound)

Structural shapes, Pitts.	2.80c
Structural shapes, Phila.	3.045c
Structural shapes, N. Y.	3.07c
Structural shapes, Chgo.	3.07c
Tank plates, Chicago	3.27c
Tank plates, Pittsburgh	3.00c
Tank plates, Philadelphia	3.245c
Tank plates, New York	3.27c
Bars, soft steel, Pittsburgh	2.70c
Bars, soft steel, Chicago	2.97c
Bars, soft steel, New York	2.97c
Bars soft steel, Phila.	2.945c
Bar iron, common, Phila.	3.145c
Bar iron, common, Chicago	2.92c
Bar iron, common, Cleveland	3.17c
Bar iron, common, New York	3.17c
Bar iron, common, Pittsburgh	3.50c
Bar iron, refined, Pittsburgh	5.00c
Hard steel bars, Chicago	2.80c

Rails, Track Material

Standard bessemer rails, mill	$55.00
Stand. open-hearth rails, mill	57.00
Relaying rails, light, St. L.	40.00 to 45.00
Angle bars, Pittsburgh base	3.00c
Angle bars, Chicago base	3.00c
Light rails, 25 to 45, mill	2.75c
Spikes, railroad, Pitts.	3.65c
Track bolts, Pittsburgh	4.90c
Track bolts, Chicago	4.92c
Track spikes, Chicago	3.92c
Tie plates, Chicago	3.00c

Wire Products

(Per 100 lbs. to jobbers; retailers 5c more)

Wire nails, Pittsburgh	$3.50
Plain wire, Pittsburgh	3.25
Galvanized wire, Pittsburgh	3.95
Barb wire, painted, Pitts.	3.65
Barb wire, galvanized, Pitts.	4.35
Cut nails, Pittsburgh	5.00
Coated nails per count keg, Pitts.	3.40
Polished staples, Pittsburgh	3.65
Galvanized staples, Pittsburgh	4.35

Chain, Piling, Strip Steel

(In cents per pound)

Chain, 1 in. proof coil, Pitts.	7.50c
Sheet piling, base, Pitts.	4.00c to 5.00c

Cold rolled strip steel, hard coils, 1⅛ inches and wider by 0.100 inch and heavier, base per 100 pounds, 6.25c.

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Sheets

(In cents per pound)

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	4.70c
No. 28, bessemer, Pitts.	4.70c
No. 28, open-hearth, Chi.	4.97c

TIN MILL BLACK

No. 28, open-hearth, Pitts.	4.70c
No. 28, bessemer, Pitts.	4.70c

GALVANIZED

No. 28, open-hearth, Pitts.	6.05c
No. 28, bessemer, Pitts.	6.05c
No. 28, open-hearth, Chi.	6.32c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	3.90c
No. 10, bessemer, Pitts.	3.90c
No. 10, open-hearth, Chi.	4.17c
No. 10, open-hearth, Phila.	4.145c

Tin Plate

(Per 100 lb. box)

Tin plate, coke base, Pitts.	$7.35

Iron and Steel Pipe

Base Pittsburgh

Base, Pittsburgh	Black Per cent off	Galv. Per cent off
¾ to 3 in., butt, steel	54	40½
⅜ to 3 in., butt, iron	36	20

Boiler Tubes

Steel, 3½ to 4½ inches, l. c. l.	33
Iron, 3½ to 4½ inches, c. l.	12½

Cast Iron Water Pipe

Without War Freight Tax

(Class B Pipe)

Class A pipe is $1 higher than Class B.

Four-inch, Chicago	$64.80
Six-inch and over, Chicago	61.80
Four-inch, New York	65.70
Six-inch and over, N. Y.	62.70
Four-inch, Birmingham	58.00
Six-inch and over, Birmingham	55.00

Hoops, Bands, Shafting

Hoops, Pittsburgh	3.30c
Bands, Pittsburgh	3.30c
Hot rolled strip steel, Pitts. stamping quality	3.30c to 3.80c
Shafting, Pitts., carloads	21 off to list
Cotton ties, per bundle	nominal

Rivets

Structural rivets, Pittsburgh	4.20c to 4.40c
Boiler rivets, Pittsburgh	4.30c to 4.50c

Rivets ½ in. and smaller Pittsburgh, 50-10 off to 50-10-10 off.

Nuts and Bolts

(Prices f. o. b. Pittsburgh)

CARRIAGE BOLTS

(⅝ x 6 inches, smaller and shorter)

Rolled thread	50–5 off
Cut thread	40–10–5 off
Larger and longer	40 off

MACHINE BOLTS

(⅝ x 4 inches, hot pressed nuts)

Rolled thread	50–10–5 off
Cut thread	50–5 off
Larger and longer	40–10 off
Cold pressed semifinished hexagon nuts ⅝ in. and larger	60–10–10 off
Cold pressed semifinished hexagon nuts ½ in. and smaller	70–5 off
Gimlet and cone point lag screws	50–10 off

NUTS

Hot pressed, square blank	2.50c off
Hot pressed, square tapped	2.30c off
Hot pressed, hexagon blank	2.30c off
Hot pressed, hexagon tapped	2.10c off
Cold pressed, square blank	2.25c off
Cold pressed, square tapped	2.00c off
Cold pressed, hexagon blank	2.25c off
Cold pressed, hexagon tapped	2.00c off

Prices Present and Past

(Yesterday, a month ago, three months ago and a year ago)

Quotations on leading products February 19, average for January, 1919, average for November, 1918, and average for February, 1918. Prices are those ruling in the largest percentage of sales at the dates named.

	Prices Feb. 19, 1919	Average prices Jan., 1919	Nov., 1918	Feb., 1918
Bessemer, valley del., Pittsburgh	$33.60	$33.60	$36.60	$37.25
Basic, valley del., Pittsburgh	31.40	31.40	34.40	33.95
*No. 2 Foundry, Pittsburgh	32.40	32.40	35.40	33.95
*No. 2 Foundry, Chicago, furnace	31.00	31.00	34.00	33.00
Lake Superior charcoal, Chicago	38.70	38.70	38.70	37.50
Malleable, valley	31.50	31.50	34.50	33.50
Malleable, Chicago	31.50	31.50	34.50	33.50
**Southern, No. 2, Birmingham	32.25	32.25	35.25	33.50
*Southern Ohio, No. 2, Ironton	31.00	31.00	34.00	33.00
Basic, eastern del., eastern Pa.	33.90	33.90	36.90	33.00
**No. 2X Virginia, furnace	32.25	35.25	38.00	33.50
**No. 2X, eastern del., Philadelphia	36.15	36.15	39.15	34.25
Ferromanganese, 70%, delivered	200.00	217.00	250.00	250.00
Bessemer billets, Pittsburgh	43.50	43.50	47.50	47.50
Bessemer sheet bars, Pittsburgh	47.00	47.00	51.00	51.00
Open-hearth sheet bars, Pittsburgh	47.00	47.00	51.00	51.00
Open-hearth billets, Pittsburgh	43.50	43.50	47.50	47.50
Steel bars, Pittsburgh	2.70	2.70	2.90	2.90
Steel bars, Chicago	2.97	2.97	3.17	2.90
Iron bars, Philadelphia	3.145	3.745	3.74	3.50
Iron bars, Cleveland	$3.25	3.32	3.64	3.64
Iron bars, Chicago mill	2.92	3.13	3.50	3.50
Beams, Chicago	3.07	3.07	3.27	3.00
Beams, Pittsburgh	2.80	2.80	3.00	3.00
Beams, Philadelphia	3.045	3.045	3.24	3.185
Tank plates, Pittsburgh	3.00	3.00	3.25	3.25
Tank plates, Chicago	3.27	3.27	3.52	3.25
Tank plates, Philadelphia	3.245	3.245	3.49	3.435
Sheets, blk., No. 28, Pittsburgh	4.70	4.70	5.00	5.00
Sheets, blue anld., No. 10, Pittsburgh	3.90	3.90	4.25	4.25
Sheets, galv., No. 28, Pittsburgh	6.05	6.05	6.25	6.25
Wire nails, Pittsburgh	3.50	3.50	3.50	3.50
Connellsville furnace coke	4.25	5.90	6.00	6.00
Connellsville foundry coke	5.50	20.80	28.75	30.00
Heavy melting steel, Pittsburgh	16.00	7.00	7.00	7.00
Heavy melting steel, eastern Pa.	15.50	19.00	28.00	30.00
Heavy melting steel, Chicago	14.50	19.20	29.00	30.00
No. 1 wrought, eastern Pa.	25.00	29.80	34.00	35.00
No. 1 wrought, Chicago	16.00	23.30	33.00	35.00
Rerolling rails, Chicago	15.00	22.30	34.00	35.00

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

(FOR ADDITIONAL PRICES SEE PAGE 542)

Pig Iron Buying Still is Lacking

Shipments Go Forward Steadily and Comparatively Little Tonnage is Being Piled But Consumers Show Small Interest in New Purchases—More Cheerful at New York—England Again Talking of Large Basic Tonnage

New York, Feb. 17.—While actual buying of pig iron during the past week has been of very slender proportions, new inquiries are somewhat better. Of greater significance, however, is the fact that some large buyers have informed pig iron sellers that they expect to be in the market for good sized tonnages shortly. With these buyers it will be a case of waiting as long as they can to see whether the market will go down. One interesting sale of the past week was one of 300 to 400 tons of standard low phosphorus for shipment to Australia. This inquiry had been in the market for some time.

The general situation in pig iron is more cheerful. Foundries are living up to their agreements to take full deliveries on their contracts in consideration of the reduction of $3 which was granted them by most of the furnaces. Furthermore, it is unquestioned that consumption of iron is large. In several cases, foundries both in New Jersey and Connecticut during the past week have turned away business in castings because their schedules already are full. As far as known there is very little accumulating of pig iron either at consuming plants or at blast furnaces. The latter certainly are not piling much iron in view of the present high cost. While the opinion is held by some furnace men that pig iron prices will go below the present level, these same individuals do not regard the market as weak, nor do they believe that there is much actual liquidation to be made. They, of course, base their beliefs on the fact that furnaces have blown out when they found that they were beginning to pile iron.

Pittsburgh Market Dead

Pittsburgh, Feb. 18.—A deader market than exists here at present for pig iron would be hard to imagine. While carload lots are sought from time to time to piece out, not a sizable lot has been moved and buyers generally are not interested to the extent of even making inquiries. Few melters of iron are running their plants anywhere nearly full and while the condition is not absolutely general, most consumers are asking that shipments against contracts be held up. The only sale of importance that has taken place recently, and this is important because it was the largest that has been made in the past week, was one involving 500 tons of bessemer for second quarter delivery, at a maximum of $32.20, valley furnace, the price to be determined monthly. This sale was divided between two producers and was placed by a Pittsburgh district steel foundry. It is stated that most merchant producers of iron are stocking to some extent, but no more than is common to this time of the year and in most instances the iron is being produced against contract. The statement is heard frequently that the appearance of a sizable inquiry on the market might lead to some cutting of prices, but as yet no such inquiry has appeared to give the market the test. Some merchant producers, and of course the steel mills, could cut prices today and make money, but a drop in prices now would mean the suspension of most of the high-cost plants and the consequent laying off of men. It is not considered desirable to let the number of unemployed increase if it can be avoided and this in brief may be given as the reason why there is no shading of prices on current demands. It is doubtful if a slight concession, moreover, would help business, as it would only tend to confirm the belief of buyers that they were pursuing the proper course in holding off the market.

Buyers Pound Prices

Philadelphia, Feb. 18.—Eastern pig iron makers are confronted with what appears to be a concerted move on the part of buyers to pull down prices. Several consumers after issuing inquiries for from one car to 200 tons have spread the report that they are able to buy at $31 eastern Pennsylvania furnace instead of at Pittsburgh

for the No. 2 foundry base grade. Investigation shows the only $31 furnace quotations are those of Buffalo and Virginia makers. The lowest price named by an eastern Pennsylvania maker is $33.15 delivered at which No. 2 plain has been sold to a consumer taking, it is believed, approximately a 65-cent freight rate. Sales and inquiries for foundry iron are appreciably better although only small tonnages are involved and these principally are carloads for prompt shipment. Included in the sales was some Virginia high manganese iron. The basic situation statistically is not so strong. One maker is endeavoring to anticipate deliveries in order to avoid piling iron, but consumers say they are not in position to grant this accommodation. Two other eastern makers have started to pile iron and at least one furnace is likely to blow out shortly.

Interested in Stabilizing Plan

Buffalo, Feb. 18.—Pig iron interests here are discussing reports in connection with the Redfield price stabilizing plan to the effect that the war industry board will be reconstituted and the prices again determined in an effort to stimulate the market. It is realized that if prices are stabilized melters probably would buy more freely because of restored confidence. Furnaces are shipping on old orders, but are doing very little new business.

Furnaces Will Go Out

Cleveland, Feb. 18.—So little business has been done in pig iron in the Cleveland district the past week that it is scarcely worth discussing. The total represents only a few hundred tons and this includes some carload business and specialties. Piling of iron on furnace banks is continuing, as while the order books of the furnaces remain of liberal tonnage, consumers in numerous cases have requested reduced shipments or hold-ups and they are being accommodated. Plans are being made by furnace interests in this district to put out several stacks within the next 30 to 60 days. Some of the furnaces involved are located in western Pennsylvania and in the east. Some further export inquiries have been received by Cleveland sellers during the past week and these included a tonnage for France and Belgium, part of which was of hematite or 0.06 phosphorus quality. The disposition of the recent inquiries from China and Japan have not been learned and as far as is known locally, these still are pending. A local maker still has a hold up order for basic for the British government upon final action yet is to be taken.

Special Irons Sell Best

Chicago, Feb. 18.—With the exception of occasional sales of single car lots in practically all grades of pig iron, the local market is featureless. An increase is noted in demand for northern high manganese iron being produced by a steel works stack. This iron was offered first as an accidental product but its analysis fitted conditions so closely that it is now being produced purposely to meet demand. Considerable more demand is being received for silvery iron as foundries seek further silicon to carry their mixtures. Requests to defer shipments because consumers are not using their iron as fast as they had expected are causing some iron to be piled on furnace yards. This condition has been foreseen for some time and has not yet reached an alarming stage, as it is expected the iron will be absorbed within a short time. Under these circumstances it is expected that several furnaces on which repairs should be made will be elected for blowing out before the middle of the year if melters do not take sufficient iron to come fairly close to total production. No definite plans are known to be on foot at present for blowing out stacks, but it is probable that one or more in this district will be put out for relining during second quarter. One Jackson county producer of silveries has reduced its quotation $3 per ton on new business and on tonnages shipped under former contracts. One of the large southern producers has reduced its quotation $3 per ton applying on all shipments made after Feb. 1, regardless of the date and price in the contract, but only providing that the melter had not held up delivery before that time. An inquiry is being considered for 1000 tons of No. 2 southern iron for export through a Pacific port on which a limit of $30.50, Birmingham, was placed.

A fair tonnage of Superior charcoal iron has been sold for delivery over the last half of the year at present price.

Market Growing More Sluggish

Cincinnati, Feb. 17.—The very dull period in the pig iron trade shows no sign of immediate change. The market seems to be growing more sluggish. Few inquiries have been received lately and business under negotiation is practically nil. Some shipments to foundries are still being held up as the foundry melt is now far below normal. The price question does not appear to be giving furnaces in the south much concern, as in the absence of any demand they claim it would be useless to try and book orders at any figure. Both buyers and producers are playing a waiting game.

England Wants Basic

Youngstown, O., Feb. 18.—Reports to the effect that a Cleveland maker had disposed of a fairly large tonnage of pig iron in this district cannot be confirmed. However, it is heard that some resale basic iron has been sold in the valley recently by a Pittsburgh company. It is understood that this iron was bought expressly for government work by the company who now offers a limited amount for resale. It is also stated England is in the market for a heavy tonnage of basic iron but that orders will not be placed in this country until a much lower ocean transportation rate can be obtained.

No Change at St. Louis

St. Louis, Feb. 18.—There was no change in the pig iron situation during the past week. Dealers and producers report a minimum of inquiries, and consumers have further curtailed activities. Most of the southern producers have signified a willingness to grant the $3 reduction, but thus far this has failed to increase sales. Eastern and northern furnaces are offering their product here at concessions, but so far as can be learned they have not sold much. A few cars of specialties have been negotiated, and there seems to be no trouble in securing any grade or quantity of iron desired. A paradoxical element is the willingness of melters to accept all the material they have under contract. There have been exceptionally few requests for cancellations and delayed shipments. A thorough canvass of architects and building contractors here elicited reports of excellent prospects. Plans and specifications already completed cover numerous structures throughout this district, and in a majority of cases an unusually liberal percentage of metal is called for.

Few Inquiries in South

Birmingham, Ala., Feb. 18.—A few inquiries for pig iron are being received by southern manufacturers and while some hope is expressed that the market will soon recover, although actual conditions show no change. The demand is quiet, and the make, still under normal, is greater than the business in hand. Some consumers are asking for concessions from the $31 price. Makers, however, are not inclined to make any cuts. No increase in production has resulted although two small furnaces have resumed operations, one at Talladega and the other at Anniston. Both will not make as much iron as was produced daily at the furnace of the Tennessee Coal, Iron & Railroad Co.'s battery of furnaces at Ensley, at which there was an accident less than a fortnight ago. Export business seems out of the question with freight rates as high as they are.

Offer Ferro

On $200 Basis for 80 Per Cent—Alloy Trading Dull

New York, Feb. 17.—A slight improvement has been reflected in the ferromanganese market during the past week. A small tonnage has been sold, and new inquiries are more numerous, although the total amount involved is small. One producer has offered 80 per cent metal at $200, delivered. On this basis, 70 per cent metal could be had at considerably less, but as a matter of fact, no offers on 70 per cent at less than $200 yet have been made by a producer as far as known. Resale tonnages on the other hand, may be had with ease at $150 for 70 per cent metal. In fact considerable tonnage has been offered at resale at this figure during the past week. An interesting sale made during the past week was one of a small tonnage of 70 per cent ferromanganese made by a producer at $200, eastern furnace, for export to South America.

Producers of spiegeleisen still are encountering considerable competition from resales by consumers, some makers reporting they are forced in some instances to compete with their own product. Little new business is being done in spiegeleisen and such as there is consists of small quantities for early shipment. A carload sale of 16 per cent spiegeleisen was

done by a producer at around $52, f.o.b. furnace, and the market may be quoted $52 to $55.

A better tone was reflected in the ferroalloy market generally last week than in several weeks, the character of the inquiries indicating that consumers in many cases have small supplies and that they would be forced into the market quickly as soon as business in the iron and steel industry improves. Several makers of per cent ferrosilicon have curtailed production sharply and one or two plants are understood to have closed down. Business has been done as low as $110 to $115, delivered, by first hands.

Several makers of ferrotungsten are quoting $2.15 a pound contained for standard alloy and report business at this level. English sellers of ferrovanadium have been sounding the markets here, one offer being of contract alloy at $6 per pound contained duty paid, New York, 35 per cent metallic vanadium contained.

Offers Resale Ferro

Philadelphia, Feb. 18.—A lot of 1400 tons of 16 to 18 per cent spiegeleisen is being offered in this district for resale by the American Steel Foundries. No price has been mentioned as yet on this material however.

Trading is Stagnant

Pittsburgh, Feb. 18.—Demand for all classes of ferroalloys still is practically negligible. Such inquiries as are coming out either are for a carload or two, or are made for the purpose of finding out prices. Plenty of resale tonnage is available to meet real demands. Usually an inquiry to the manufacturers is quoted far above the level at which sales probably could be made. Recently makers have quoted $225, delivered, on 70 to 80 per cent ferromanganese against an inquiry for 600 tons and on one or two calling for about a carload. The possibility that any business will result is considered slight for the reason that there continue to be rather generous supplies of resale metal for which holders would be very glad to receive $175.

Makers of bessemer ferrosilicon are getting only a few small inquiries and have no very clear idea as to the prices they might be able to obtain. Consumers in this direction are well covered and as is the case with other alloys, it is probable that some of them have more than they require and would be glad of an opportunity to dispose of some of the surplus.

Resale electrolytic ferrosilicon has been offered without takers at $100, delivered, for 50 per cent material. Not enough is going on in 16 to 18 per cent spiegeleisen upon which to base any quotation but resale tonnages, which comprise the bulk of current transactions, are selling from $57 to $60, furnace. The market in fluorspar is purely nominal with small lots of resale material moving around $25 to $26 for gravel spar. It is reported here that imported fluorspar is being offered from $12 to $15 f.o.b. Baltimore. Consumers are well covered by contract and dealings are governed not so much by prices as by actual requirements.

Adjusting Coke Contracts

Settlements Not Made Known But Believed to be on $5 Basis for Furnace Fuel—Production Still on Decline

Pittsburgh, Feb. 18.—Contracts for coke made on the basis of the last government fixed price for furnace fuel quite generally are being adjusted to the actual basis of the revised agreements has not become public property. The common assumption is that producers have shaded prices $1 a ton to $5, ovens, for standard furnace grade. Practically the only basis for this belief, however, is the fact that this has been the price that has been quoted for the past few weeks by the producers, the bulk of whose contracts specify the last government prices. Thus far, not many of the contracts for foundry coke have been adjusted for the reason that the producers are not voluntarily scaling prices but are doing so entirely upon request and have not been besieged with such requests from the consumers of foundry fuel. It is rumored, however, that once the market becomes clearly established, that a voluntary revision of foundry contracts will be made. Meanwhile, the spot market on both grades is extremely inactive. Consumers are well covered against their February requirements and since it is considered improbable that prices will be any higher by the first of the month, there is a disposition to postpone March commitments until the last moment. Between the offerings of the producers who have no direct furnace connection and those that can continue the market as a result of the suspension of shipments, spot supplies of furnace coke are quite ample and while it might be a little difficult to make a contract over any considerable period at from $4 to $4.50 a ton, ovens, this is the range on the spot sales that have recently been made. A lot of 5000 tons for shipment over the next few weeks was offered at $4.25, ovens. Producers generally ask $6, ovens, for standard foundry coke but as far as actual business is concerned, $5 to $5.50 is nearer the market. According to *The Connellsville Courier*, the Connellsville production of coke for the week ending Feb. 8 was 225,786 tons against 262,644 tons in the previous week.

Southern Production Steady

Birmingham, Ala., Feb. 18.—Coke production in Alabama is holding up, but there is little, if any, accumulation. Independent manufacturers reiterate that furnace companies are taking what surplus they have. Some inquiries from consumers outside this district have been received and more sales are expected soon. Coal production in Alabama shows a falling off almost weekly now, wagon mines shutting down and some of the regular operations being less active. Domestic coal is needed in quantity and prices have advanced. Steam and bunker coal is needed in southern ports but in other directions the demand is slack. Prices of steam and bunker coal have eased a little. Coke prices show little change as far as surface indications go.

Closing Down Ovens

Cincinnati, Feb. 17.—There is practically no soliciting for coke contracts by selling agencies. Recent reductions in quotations on the part of Connellsville oven operators have not tended to bring out any business. Some Connellsville furnace coke can be bought at $4.50, and it is even reported that this figure could be shaded to get rid of some off fuel promptly. Foundry coke is generally quoted around $6, ovens. Wise county, Pocahontas and New river operators are asking more for fuel, but are not making any contracts. Considerable talk is heard of closing down ovens.

Market at St. Louis Soft

St. Louis, Feb. 18.—In sympathy with lower prices in the East, coke here shows a decided softness. For the first time in many a month all grades are now plentiful, and selling agencies are offering inducements to obtain business. Melters in this district are extremely well covered, most of them with contracts extending far into 1919. The colder weather of the past week has revived the demand for domestic grades, but stocks of this sort of fuel are heavy. The demand from the Southwest has fallen to a minus quantity. Some small tonnages of foundry coke of standard grade sold to an Iowa melter comprised about all the business heard of this week.

Better Situation

Shown in Tin Plate and Can Makers Are Specifying

Pittsburgh, Feb. 18.—Continued improvement is observed in the tin plate situation. Not only are specifications against unfilled orders coming forward quite freely but new orders are more frequent if not individually large. It is necessary for makers of perishable food containers, who want deliveries of tin plate in April, to specify by Feb. 15, and it is reported that the more important can manufacturers are now placing their specifications and that delay in this respect is confined entirely to the smaller units. Meanwhile, manufacturers are firmly maintaining prices on a basis of 7.35c per base box, Pittsburgh. Talk of sales at a price below the market has practically ceased; in fact one Chicago packer whose purchasing agent recently was actively trying to "bear" the market has placed a fair sized order in the past few days. Tin plate manufacturers are looking for big demands in connection with their packing of pineapples this year. It seems that Hawaiian crops are unusually heavy and it is expected that canning of this food in Porto Rico and Cuba will be heavier than ever before.

Scrap Decline Slowing Up

While General Weakness Still Prevails, Some Grades Strengthen at Chicago and Buffalo—New York More Cheerful

FOR COMPLETE SCRAP PRICES SEE PAGE 542

Chicago, Feb. 18.—After a long period of constant and more or less consistent decline in iron and steel scrap, the first sign of possible steadiness and retracing of the downward path is appearing today. Cast scrap is quoted at 50 cents per ton higher than last week. This is not taken as indicative that the downward course of the entire list has been checked or that a return to higher levels is expected shortly, but it does indicate that in at least one grade the scarcity of scrap is making itself felt. As has been mentioned previously, present prices are so low that country dealers are not collecting closely and inasmuch as part of the cast scrap consumed by foundries comes from this source, the supply is much reduced. In most other grades prices are stationary at last week's levels, but in some cases a slight further decline has taken place. The Toledo, St. Louis & Western offers 750 tons of No. 1 steel rail and 846 tons of miscellaneous steel rail; the Chicago, St. Paul, Minneapolis & Omaha, 870 tons and the Chicago, Burlington & Quincy 350 tons.

Tone in East Improves

New York, Feb. 17.—More cheerful sentiment is apparent in the local iron and steel scrap market. During the past few days there has been better inquiry, and the price situation generally has stiffened. This is noticeable especially in borings and turnings and wrought material, for which the rolling mills are displaying more interest. In fact, a fair volume of buying has been done, and it is said that supplies are low at some of the rolling mills. A better inquiry is also noted in cast scrap, the foundries being more active, and while bookings for this material continue small, sellers generally feel encouraged. Weakness has been displayed in one or two instances, resulting in lower prices; nevertheless, the tone of the market has improved and the belief is gaining ground that prices have about reached bottom.

Market is Untested

Philadelphia, Feb. 18.—Several grades of iron and steel scrap were further reduced the past week in this territory. Heavy melting steel was sold as low as $14 delivered and is now quoted at $14 to $15 delivered. There is scarcely enough business to thoroughly test the market in any grade. Shafting now stands at $26 to $27.50 delivered. In forged scrap and bundled sheets no sales are being made and the market is nominal although buyers are certain they could close at $15 to $16 delivered, the previous quotation.

Prices Still Tend Down

Pittsburgh, Feb. 18.—Price tendencies in the scrap iron and steel market here still are toward lower levels, although so little business is going on as to render quotations merely approximations. Consumers as a rule are well covered against their immediate requirements and only in the case of machine shop turnings, which are down to prewar prices, does there seem to be sufficient interest in market offerings to the extent of inducing bids. One big Pittsburgh district consumer is buying machine shop turnings freely both here and in some of the outside districts paying $9 a ton, delivered, Pittsburgh, for them. The market still is settling on heavy melting steel while a sale of 500 tons of this grade is reported at $16.50, this is fully 50 cents a ton above the price named on liberal tonnages and it is doubtful if $16 could be exceeded today. Heavy offerings of 6-inch unloaded shells are being made at $15 and $16, delivered, Pittsburgh, thus taking the range of heavy melting steel, although rightfully they should be classed as low phosphorus scrap. It is stated in connection with these shells that there is only a limited demand for low phosphorus steel scrap, and the dealers, who are the only buyers, cannot well afford to take a chance on paying any more money since eventually they may be obliged to sell such scrap for heavy melting steel. No. 1 cupola cast is in scant supply and firm in prices, although not in active demand.

Inquire for Stove Plate

Buffalo, Feb. 18.—Some inquiry for stove plate has developed in this district. As soon as the inquiry started the price stiffened, showing that supplies are not very plentiful. There were no sales at $17 to $18, the nominally quoted price, and it is doubtful if any considerable tonnage of stove plate can be secured anywhere at those figures. Some sales of turnings, borings and heavy melting steel have been made for outside destinations but the volume has been small. Dealers are more optimistic though there is no buying of account by the leading local consumers. Stocks in consumers' hands are reported to be low.

Large Offerings Depress Prices

Cleveland, Feb. 18.—Scrap iron and steel, responding to the law of supply and demand and the theory that the market cannot remain stationary but must move up or down, has receded again. Surprisingly large tonnages are being offered by producers, while consumers continue indifferent. The production of such large tonnages of scrap, which have been thrown on the market because of a lack of storage space, and the insignificant consumption in comparison, lead dealers to fear scrap buying on a sizable scale will not be done until after July 1. It appears to the dealers that high-price contracted pig iron is being used up now, while beginning with the second half—when these pig iron contracts will have expired—scrap again will come into favor. One Pittsburgh district consumer is buying turnings for $9, delivered. Some heavy melting steel has been sold here at as low as $14.25 for spot delivery. Yard men have shaded this price on material they are throwing on the market and these sales represent individual bargaining. With few exceptions, every grade is from 50 cents to $5 lower than a week ago. Dealers are not so sure that buying will be given impetus by the new stabilized price plan, and are opposed to government price control in any form.

Foundries Not Buying

Cincinnati, Feb. 17.—The decline in prices has not yet been checked, but there is such a wide variation in the different kinds of scrap quoted that it would be difficult to outline what might be called a fair average price on any grade. The foundries are not buying scrap and the steel mills have not only cut down their purchases but have been holding up shipments. The production of cast borings and steel turnings has been much curtailed, but shops are turning out more than for which there is a demand.

Further Reductions at St. Louis

St. Louis, Feb. 15.—Further heavy reductions were made in prices of scrap this week. Heavy melting steel touched $14, at which figure there were some transactions. Machine shop turnings dropped from $8 to $5 and cast iron borings from $10 to $6, with proportionate cuts all down the line. The only material not reduced was iron car axles, which are scarce, and which advanced from $23 to $24. Business is described as about the poorest on record, and it is expected prices will go still lower before bed rock is reached. The weakness is due to an absolute lack of demand. This week's additional declines resulted from the fact that railroads are forcing sales of material they are unable longer to carry, and dealers at this juncture are unwilling to take on anything. If the price of certain grades drops another dollar, however, yard interests expect to load up. Any sort of buying probably would elevate prices quickly, so that from the speculator's viewpoint the market has now reached an advantageous position. There is no competition from consumptive buyers, and dealers have full sway on the buying side. Cast iron borings can be picked up in bulk very cheaply and other grades are relatively as low. The Missouri, Kansas & Texas sold a list of 700 tons this week at astonishingly low figures, and bids on the Wabash list of 1600 tons are proportionately cheap. Rerolled rails have been offered at $15 and could not be sold at that price. It is freely predicted that heavy melting steel will go to $11 here. More announcements of curtailment in activities and actual closings came to light during dethe week.

Heavy Steel Down to $13

Birmingham, Ala., Feb. 18.—Further weakness is noted in the scrap iron and steel market in the south. Dealers are making but little effort to buy any stock and consumers, who may be in need of a little scrap, are practically making their own prices.

Heavy melting steel has been down to $13, the lowest price in many years, if not the lowest ever recorded. Further curtailment of working force is noted in yards of dealers. All dealers in this territory are pessimistic.

Oil Goods

In Demand for Tube Mills—Keep Down Cast Pipe Orders

Pittsburgh, Feb. 18.—Strong demand exists for oil country goods and makers of tubular goods also have a fair amount of business before them in standard pipe. Buttweld pipe is rather slow of sale but this is merely a seasonable condition and with the opening of spring, the manufacturers are looking for greater activity. Jobbers are more active in the market than they have been as their stocks have dwindled to meager proportions and current demands for repair work have compelled them to replenish. More jobbers' orders have come to makers of wrought iron pipe this month than in January and January saw much improvement over the last month of last year. Thus far the inquiries for a big tonnage of line pipe for Texas have not been placed. Pipe manufacturers are running their mills at a comparatively high rate of activity as all of them have a fair amount of business before them. Independent plant operations are probably 70 per cent of capacity while the National Tube Co. is running comparatively full, although it is admitted in the latter instance that the amount of business on the books does no warrant more than 75 per cent operations and that the plants are being kept in operation, for the most part, to keep the men at work. The Biddle Purchasing Agency has come out with a new prediction that pipe prices are on the verge of a decline.

More Inquiries Noted

New York, Feb. 17.—A slightly better volume of inquiry prevails in the eastern cast iron pipe market. Aside from this feature the situation is largely unchanged, as bookings are light and prices steady.

Cities Trim Tonnages

Chicago, Feb. 18.—Buying of cast iron pipe continues on a low level, although more inquiry of a promising character is evident than for several months. The United States Cast Iron Pipe & Foundry Co. has taken 2000 tons of 48-inch pipe for the city of Detroit. Bids were opened at Denver, Feb. 14 on 350 tons of 16-inch pipe and 50 tons of 42-inch pipe. Bids will be opened Feb. 20 at Rockford, Ill., on 475 tons. Routine and carload orders from contractors and industrial users are smaller than usual.

Detroit will open bids Feb. 20 on 4000 tons of 8 to 24-inch pipe. If this tonnage is bought, it will make a total of 10,000 tons for this city, which is probably the largest purchase of the season so far.

Pipe Orders Still Slow

Birmingham, Ala., Feb. 18.—Only a few inquiries for cast iron pipe have been received here so far this year. It was expected that the general reduction in prices would induce a general buying movement but it has not developed as yet.

January Awards Dip Low

Structural Tonnage Placed Totals Only 12 Per Cent of Capacity. Poorest Record in Years—Improvement is Slow

New York, Feb. 17.—Structural bookings were the lowest in January in the history of the Bridge Builders and Structural society. This fact was divulged here today in the regular monthly statement of the society, which showed a falling off in bookings to 21,600 tons, or 12 per cent of shop capacity. In the previous month, awards amounted to 29 per cent of the capacity, or 52,270 tons making the loss of 30,670 tons. That this decline should take place has occasioned but little surprise in the trade as new structural business has been exceedingly light.

While new business is being placed slowly in the New York structural market at this time, conditions appear to be somewhat improved. Sellers state that more projects are in process of being figured upon now than at any time in weeks. Prices on shapes and plates continue unchanged.

Navy projects figure largest in the immediate market. These include 1200 tons for crane runways at the League island navy yard, Philadelphia, on which the American Bridge Co. is low bidder, a 350-ton award for the Boston navy yard and new bids to be taken about the middle of March for shops at the Mare island yard original requirements of which were 6200 tons.

A comparative statement of structural awards as compiled by the Bridge Builders society over a period of months is as follows:

Month	Per cent	Approx. tonnage
January, 1919	12	21,600
December, 1918	29	52,270
November	27	48,700
October	43	77,400
September	60	108,000
August	57	102,000
July	116⅓	209,700
June	56	100,800
May	60	108,000
April	64	115,200
March	47	84,600
February	55	99,900
January	53	95,400
December, 1917	121	305,200
November	77	138,600
October	61⅓	110,700
September	29	52,200
August	38	68,400
July	41⅓	74,700
June	47⅓	85,500
May	56⅔	102,000
April	61	110,000
March	68	122,000
February	59	106,000
January	61⅓	119,000
December, 1916	86	148,000
November	78	134,000
October	77	133,500
September	52⅓	99,400
August	64	112,600
July	47⅓	83,600
June	58	100,000
May	80	137,000

Bridge Steel is Let

Chicago, Feb. 18.—Although building activity in the west continues at a low ebb, an occasional bright spot appears to relieve the general inactivity. It is understood the Great Lakes Dredge & Dock Co., which has the general contract for a double deck bascule bridge, plazas and approaches at Michigan boulevard, Chicago, has let about 3600 tons of steel for the bridge proper to the American Bridge Co. Additionally about 400 tons of steel for minor purposes has been covered. About 4000 tons remains for the approaches and plazas which probably will be placed in a short time, as some will be needed in about 60 days, if construction is not to be delayed. The only other tonnage closed in the west recently involves 105 tons for a sacking plant and conveyor for the Marquette Cement Mfg. Co., La Salle, Ill.

Shape Mill Operations Low

Pittsburgh, Feb. 18.—Inquiries for shapes are reported to be quite numerous and much activity is said to exist in the estimating departments of a great many of the construction companies but the structural mills still are running at an extremely limited rate of operation. Such orders as are actually being placed are for small tonnages and the tonnage that was on the books of the manufacturers at the signing of the armistice is pretty well worked off. None of the Pittsburgh fabricating companies this week reports any structural awards.

CONTRACTS AWARDED

Sacking plant and conveyor for the Marquette Cement Mfg. Co., La Salle, Ill., 105 tons.

Michigan boulevard improvements, Chicago, 3600 tons, reported to have been placed with American Bridge Co. by Great Lakes Dredge & Dock Co. general contractors.

CONTRACTS PENDING

Crane runway extension, League Island navy yard, Philadelphia, 1200 tons, American Bridge, low bidder.

Pier for city of Philadelphia, 1250 tons, F. W. Mark Construction, low on general contract.

Two school buildings in Bronx, New York City, 1100 tons, Nugent Construction Co. reported low bidder.

Shops for Mare Island navy yard, new bids to be asked; old plans called for 6200 tons.

Shop for Boston navy yard, 350 tons, New England Structural Co.

Expect Railroad Control Will End July 1

Washington, Feb. 18.—Railroads will go back to private control and management on July 1, according to the latest developments here. Federal managers will be relieved of their individual road management soon after March 1 and three months later full government regulation will be abandoned. It is stated these steps will be ordered and outlined in a proclamation the President is to issue soon after his return from France. This will leave the interstate commerce and the various state commissions in control.

Congress, while apparently intending to authorize Director General Hines to spend or lend $750,000,000 additional for the development of the lines, is not going to take any action in this session by which the future control of the railroads will be determined. Just how wage and rate increases will be reconciled to the conditions contingent upon private operation has not been made clear.

Bar Outlook is Favorable

Situation in West Satisfactory and is Improving—Little Stocking of Material by Mills—Shipments Active, New Orders Fair

Chicago, Feb. 18.—Various indications are seen by producers of steel bars to indicate that demand will keep up and probably increase as the year goes on. Agricultural implement makers and builders of tractors see a period of activity, although the automobile business is comparatively quiet. At present new orders are for small tonnages for nearby delivery and are running about in the same proportion as during the first half of the month. A steel seller of wide observation believes that the present situation is much better than during many years preceding the war, that it is improving steadily and that a period of great prosperity lies ahead as soon as business adjustments are made. On this basis he believes there is no room for pessimism as to the outlook. An additional factor in bringing him to this opinion is that railroads are chafing at the curb placed on them by the railroad administration which prevents their placing large orders for material greatly needed for spring work. The leading interest found January a record breaker, production of ingots being higher than any other month in the history of the company, while shipments were only a trifle under the best previous mark. Operating conditions and efforts to produce steel must have been tremendous to give a record in a month which usually presents one of the worst totals of the year. Statements in the press that the leading interest attained its high output for January by piling much finished steel and furnishing tremendous tonnages to its warehouses needs no further refutation, indicating extreme lack of knowledge of steel mill operation on the part of those who disseminated the information.

Bar iron has softened to a basis of 2.92c, Pittsburgh, which is $1 lower than a week ago. This figure is believed to have been adopted to bring bar iron a shade under soft steel bars, which are the direct market competitor. Selling of this product is better, although tonnage is not yet sufficient to make it an active market. No change is noted in demand for hard steel bars, neither reinforced concrete builders nor manufacturers being interested.

Lower Price General

New York, Feb. 17.—As indicated in last week's issue of THE IRON TRADE REVIEW, eastern bar iron makers now are offering common merchant bars at 2.90c, Pittsburgh, compared with 3.50c, the previous price. The new price became effective last Thursday. The usual differentials are asked, so that the price for refined iron bars is 3.65c. New demand is small.

Eastern Bar Iron Unsettled

Philadelphia, Feb. 18.—Eastern bar iron market is now at 2.90c, Pittsburgh, or 3.145c, Philadelphia, for common merchant bars, but not all makers are yet willing to sell on this basis declaring it costs them more than this figure to produce. In the meantime the market is unsettled by the fact that western makers have offered common bars to eastern consumers in some cases at 2.70c, Pittsburgh. Some orders have been taken by eastern makers at 2.90c, Pittsburgh, but the demand is very light.

The demand for steel bars in this district has improved and at least two domestic orders of around 1000 tons each have been booked for quick shipment the past week. Although business has improved, the market lacks volume.

Greater Activity is Sustained

Cleveland, Feb. 18.—Merchant mill products continue to make a very fair showing both with respect to new inquiries and as to tonnage going to the mill. Various leading mill agencies in this territory report that their orders last week were more satisfactory and that the tonnage appears to be growing progressively, indicating a sound condition of consumption. A buyer in this district is in the market for 2000 tons of 15-inch rounds which are to cover a government contract. Another inquiry calls for 400 tons of rounds from an automobile accessory manufacturer. The automobile, tractor and implement industries continue the most prominent in present orders and inquiries. Offers continue to be sought on a variety of resale lots on which it is indicated liberal concessions would be allowed. One lot represents 500 tons of 1⅝-inch forging bars and flats being rolled by a Canadian mill. An eastern owner has been endeavoring to market 400 to 500 tons of 10½ x ¼-inch bands. Prospective buyers of shell steel billets who have been seeking conversion arrangements with the mills to produce reinforcing bars, small angles, etc., have been trying to develop a price for rolling of $17.50 per ton. If this is obtainable, it is expected that this rerolled material would be offered around 2.25c to 2.50c mill. Reports persist of irregularity of the reinforcing bar market but such small sales as are going are being made at the full price of 2.70c mills.

Business Dull at Buffalo

Buffalo, Feb. 18.—Bar business is reported dull in this district. Mills are working on occasional orders, rolling small lots.

Expect Decline in Bar Iron

Pittsburgh, Feb. 18.—Makers of bar iron in this district still are quoting a base of 3.50c, Pittsburgh, for common merchant iron, but are quoting this level with much less confidence than formerly and do not deny that it may be necessary soon to revise prices downward in order to secure business. Current demands are few and entirely of small lots and since old business is largely completed, manufacturers are beginning to become anxious for orders. In view of the fact that average bar iron sales prices for the past two months will show a considerable decrease, puddlers' wages for March and April will be correspondingly reduced and this removes another prop to the bar iron market. Merchant steel bars are selling steadily as wanted. It is reported that the market quotation of 2.70c, Pittsburgh, is being shaded here and there, but such sales cannot be verified. Small tonnages of concrete reinforcing bars are reported to have been sold for export at concessions from the regular market quotation of 2.70c, Pittsburgh.

Bolt Plants Slow Up

Chicago, Feb. 18.—Inquiry for bolts and nuts is fairly good for small tonnages, but the situation of producers, which was most satisfactory a few weeks ago, has changed materially with slackening of demand. As a result several producers in this district are operating only about 50 per cent. No indication is apparent that this condition will become better for some weeks.

Nut and Bolt Orders Grow

Cleveland, Feb. 19.—Orders for nuts and bolts have been received here in increased numbers during the past 10 days. Users apparently have concluded their inventories and now are endeavoring to obtain those supplies on which their stocks were allowed to run low. The market is without feature. Local makers are holding prices firmly. No inquiries out of the ordinary are being received. Rivet makers are meeting in Pittsburgh today and considerable interest centers in the gathering, since at it matters which have a bearing on the market are being discussed.

Rivet Prices Irregular

Pittsburgh, Feb. 18.—Much irregularity is observed in the prices of the various sizes of rivets. Small rivets are selling as low as 50-10-10 off list in the anxiety of manufacturers to secure business. Some cutting of prices also is being made in the larger rivets for while manufacturers are well booked on Emergency Fleet corporation requirements, the holdup of the shipbuilding program means some slowing down in specifications and deliveries and manufacturers are in a better position to make prompt shipments than they were a short time ago. The market is holding fairly firm on nuts and bolts, although a good deal of stock left on the hands of those who were engaged on government work, and as a result of the cancellation of such contracts, is being offered at prices far below the regular market quotations. Bolts that are offered in this way, however, usually are of special lengths, threads and analysis and only in a few cases could be used in ordinary peacetime requirements.

Shafting Demands Are Light

Pittsburgh, Feb. 18.—Current dealings in cold rolled shafting in screw stock are of rather small volume as buyers are content to observe a hand-to-mouth method until they are satisfied that prices are not going to be lower. The mills in this district are running about 60 per cent of capacity at present. Suggestions of lower

prices find prompt denial on the part of manufacturers, but like so many other finished steel products, more or less shafting was left on the hands of contractors and subcontractors through the cancellation of government orders and some pretty low prices are being named on these supplies by those who no longer need them. It is the practice of contractors once they have adjusted their contracts with the government to dispose of any steel they may have on hand, as the result of the cancellation, at the best possible price. This stock left over from government work, however, only in a few instances is distributed for ordinary peace requirements and has no particular bearing on the direct from manufacturers' market quotations.

Demand at a Standstill

Pittsburgh, Feb. 18.—Makers of hoops and bands in this district are in receipt of extremely few orders and these call for only small lots. As old business is practically all out of the way, mill operations are extremely irregular. Thus far, prices are holding at a basis of 3.30c, Pittsburgh, of both hoops and bands, although some makers of hot rolled strip steel, in the anxiety for business, recently have shaded prices.

Wire Contracts

Offered for Guarantees Against Decline—Operate 65 Per Cent

Pittsburgh, Feb. 18.—Makers of wire and wire products in this district still find consumers inclined to be rather cautious about their purchases, although the latter in a number of instances have expressed a willingness to contract ahead provided they were given a guarantee against a decline in prices. Manufacturers, however, are not inclined to make this concession and purchases are confined entirely to the small lots that will meet immediate requirements. Quite a few export inquiries are coming to makers, but here, as with practically all of the foreign inquiries, the amount of business actually placed is infinitesimal, in comparison with the number of inquiries. Mill operations are averaging better than 65 per cent of capacity, but this in part reflects production against stocking.

Volume of Orders Good

Buffalo, Feb. 18.—Wire orders are coming in in good volume to local mills. Wire rods also are reported to be moving freely.

To Resume Manufacture

Manufacture of galvanized sheets will be resumed in the near future by the LaBelle Iron Works, Steubenville, O. The company discontinued the manufacture of sheets in this finish nearly three and one-half years ago on account of the spelter situation created by the war.

Joseph Boyer has been re-elected president of the Burroughs Adding Machine Co., Detroit. The company is negotiating for the purchase of the Moon-Hopkins Billing Machine Co., of St. Louis, for $750,000.

Awaiting Big Plate Lots

Mills Continue to Operate Only on Small Orders—120,000 Tons for Freight Ships Not Closed—Expect Canadian Tonnage

Philadelphia, Feb. 18.—Eastern plate production now is running at 60 to 65 per cent of capacity. Small orders are being placed steadily but the aggregate tonnage is not large. Eastern makers say that unless the demand is greatly improved within the next 90 days they will have to make a considerable further curtailment of their production. It is learned that although the New York Shipbuilding Co. is expected to build the fleet of 20,000-ton cargo carriers for the Emergency Fleet corporation, the contract is still to be signed by President E. N. Hurley. The 120,000 tons of steel will not be placed until the contract is signed and shapes will be placed in this country for large car orders just distributed by the Canadian government with car builders of the dominion. The Inland Steel Co. has closed an order for several thousand tons of plates, shapes and bars for export to Holland.

Could Handle More Business

Pittsburgh, Feb. 18.—Plate mills in this district, aside from the Emergency Fleet corporation and car plate orders that are on their books, are not especially well provided with business and operations are on a rather restricted scale. Some export inquiries are being received but comparatively few of them are resulting in actual sales. Taking the industry as a whole, a good deal more business could easily be handled, even in ship and car plates upon which some makers recently were unable to guarantee prompt deliveries. An attempt has been made recently to organize the plate manufacturers into an association but it is understood that the movement has not been marked by success.

Await Orders on Lake Boats

Cleveland, Feb. 18.—Much interest is being shown in the future of the contracts for ocean vessels placed by the Emergency Fleet corporation with lake yards, upon which no construction work has been done. All the orders upon which the work has been instituted or for which steel has been rolled or delivered, are going forward. Little new ship construction on the lakes now is reported to be in sight. An inquiry for 300 tons of steel for an ocean-going tug has been put out by a local yard.

Backlogs Are Being Spent

Youngstown, O., Feb. 18.—Most of the backlogs of plate orders are cleaned up or nearly so as far as mills here are concerned. Present rollings are going forward on business recently booked and this in the aggregate is not large. Among inquiries received this week is one for 2000 tons of tank plates.

Several buildings on property recently purchased by the Conradson Machine Tool Co., Green Bay, Wis., are to be modernized for temporary use. Another improvement considered by the company is the erection of an office building.

Japanese Lines

Inquire for 10,000 Tons of Rails—Railroads Anxious to Buy

Philadelphia, Feb. 18.—An inquiry for 10,000 tons of rails for the Imperial Railways of Japan is current in the export market. Other lots of rails for export continue under negotiation.

Talk Unaccompanied by Orders

Pittsburgh, Feb. 18.—While there has been a great deal of talk about the early placing of orders for rails and other track equipment by the railroad administration, actual bookings in this district have been few and unimportant. The Carnegie Steel Co., contrary to some reports, has a substantial tonnage of rails on its books, some of which are for export with a fair sprinkling of domestic orders. Track bolts are firmly held and current orders are not especially large and makers have a fair amount of business ahead of them. Spike demands are extremely limited as the railroad administration is frowning against contracts of large spikes by the railroads under its control and slowing down in coal mine operations is cutting sharply into the demand for small spikes and this latter reason also might be advanced in explanation for an inactive market in light rails.

Trolley Rails Wanted

Cleveland, Feb. 18.—An inquiry for 10 miles of second quality rails representing probably 1100 tons, for a trolley line in Florida has been current in this market.

New Cars Glut Builders

Chicago, Feb. 18.—Little or no buying of freight cars seems possible as long as the large purchase by the railroad administration remains suspended. This lot of cars, equal to at least an ordinary six months supply of new rolling stock, is a weight hanging over the market and preventing other orders being placed. Railroads are specifying more heavily than usual on spikes, bolts, angle bars and other specialties, but are not buying as strongly as they desire, the railroad administration withholding permission. Meantime, the railroads realize they must provide material for spring work and are much worried over lack of comprehension evidenced at Washington.

One important railroad desires to place a large tonnage of rails which are urgently needed to keep up its tracks but is unable to proceed. Meanwhile full inventory of various supplies has been made and much "swapping" has been done, railroads having a surplus of material furnishing it to those in need. This defers the actual date of replacement of stocks.

Automobile Sheets Active

This Class of Demand Continues Most Vigorous Branch of Market—Operations Irregular—Some Mills Filled, Others Running Only Partially

Youngstown, O., Feb. 18.—Sheets continue to move slowly in valley territory. While no marked improvement is shown this week in actual business placed, still conditions are slightly better than last week. Makers are active in seeking business and are successful insofar that enough orders are being obtained to keep their mills operating partially. This is borne out by the fact that sheet mills throughout the valley are rolling closely to 65 per cent of capacity. While this figure is low, yet makers here feel they are getting their proportion of such business as there is to be had at present.

The greatest activity in sheet buying is being shown by makers of automobile bodies and the automobile trade in general. More sheets are going to this class of trade than to any other class of consumers. Some export business is also being done, and, in certain quarters. Domestic inquiry in some parts of this territory is fairly active; in other parts little interest is shown; but wherever made, it is noticed that only small tonnages are wanted. Buyers who patronize certain valley mills are getting deliveries in three weeks. Some mills are making shipments in less time. An inquiry for 200 tons of corrugated galvanized has come to one maker this week. Many stock lists covering all grades, sizes and gages have been sent broadcast this month but so far few orders have materialized. One company who for more than a month has had 2000 tons of an open hearth grade of galvanized up for resale, the material having been originally bought for war work, reports little progress in moving this product.

Operations Are Maintained

Philadelphia, Feb. 18.—The leading eastern sheetmaker reports he is booking orders for blue annealed in sufficient tonnage to maintain operations around 65 per cent of capacity. No large lots are included and all material is wanted for quick shipment.

Buying Merely is Needed

Pittsburgh, Feb. 18.—So firmly is the notion imbedded in the minds of users of ordinary black, galvanized and blue annealed sheets that current prices cannot continue, but none of them is buying beyond immediate requirements. Such business as is being placed is entirely for small lots calling for prompt delivery and while such orders are fairly numerous they do not bulk especially large in the aggregate. A fair amount of unfilled tonnage still is on the books of the manufacturers and specifications against these contracts are fairly good. Demand for the so-called specialties in sheets, such as electrical and automobile sheets, continues good and mill capacity in this direction is fully engaged for several months ahead. In general, the independent sheet manufacturers are running around 70 per cent of capacity with the American Sheet & Tin Plate Co. mills averaging somewhat higher.

Automobile Builders Buy

Cleveland, Feb. 18.—Automobile builders have been coming into the market more freely for sheets suitable to their line of production, and have been placing a fair volume of orders. As a result, some of the mills in this district have accumulated a satisfactory tonnage on their books and are now filled for several months ahead. During the past week one inquiry for 500 tons and another for 300 tons were placed. Promptness of delivery determined the destination of these orders rather than price as quick shipment was sought. Another inquiry current was for 10,000 to 11,000 No. 9 gage sheets. One export order of 500 tons of heavy sheets on which shipment was wanted early in March also was placed.

Buying Hand to Mouth

Chicago, Feb. 18.—Practically all sheet mills in the Chicago district are operating at full capacity and there is sufficient business to avoid slackening in production. However, demand is about equal to supply and no increase in backlog is possible. This condition is not as comfortable for producers as might be although no apprehension is felt over the outcome. Some slackening of production may be noted later when sheets ordered by France in place of part of its cancelled shell steel tonnage have been delivered.

Semifinished Inquiry Good

Especially for Export But Orders Are Not Numerous—1000 Tons of Rods Sold to England—Slab Price Cut

Philadelphia, Feb. 18.—Semifinished steel is displaying greater activity in eastern territory. Several inquiries are out from consumers in this district all for small tonnages and for quick shipments. Sales included some lot of 300 and another of 200 tons for rerolling billets and also a small lot for forging billets, all for quick shipments. A notable export sale involves 1000 tons of open hearth wire rods to England at the regular domestic price of $57, Pittsburgh.

Foreign Inquiry Active

Pittsburgh, Feb. 18.—Foreign inquiries for billets, slabs and skelp continue numerous but the actual amount of business being placed is all out of proportion to the number of requests for quotations. Actually, only small tonnages are being booked. Domestic demands are moderate and not especially frequent. Finishing mills are not crowded with business and being covered by contract, do not have to come into the open market for supplies. Prices are holding at the Jan. 1 level.

Ordering Special Grade Bars

Youngstown, O., Feb. 18.—Sheetmakers are confining their purchases of sheet bars to within the limits of their sheet orders. Manufacturers of sheet bars have noticed recently a decrease in bookings for standard weight material and state that most of the semifinished going through their mills now is of a grade especially adaptable for rolling highly finished sheets evidently for the automobile trade.

Slabs Sold at Concession

Cleveland, Feb. 18.—Considerable discussion has been caused in the local market the past few days by at least one, and it is reported two sales of slabs to buyers in this district at $5 below the market, or at $41, Pittsburgh basis. The seller was an outside mill which is reported to be badly in need of orders. One of the lots is understood to have called for 500 tons. Other makers of semifinished steel have shown no disposition to meet this cut and are disposed to regard it as an isolated case. They are continuing to offer and sell small lots of rerolling and forging billets, sheet bars, and other forms at full price. Local makers of semifinished steel were encouraged by the large tonnage of export inquiry received during the past week but they have yet to convert any of these lots into sales. Producers of semifinished steel here are keeping all their mills running but on low gear.

Some Cutting in Hot Strip

Pittsburgh, Feb. 18.—Demands upon the makers of hot rolled strip steel are so few and involve so little material that in order to secure business, some producers are quoting the basis of 3.30c, Pittsburgh. This price is not being quoted at all, however, although demands are so moderate that it would seem most of the business would go to the makers naming the lower prices and thus lead to a general revision. Demands for cold rolled strip steel are steady and fairly active from the automobile manufacturers and while trifling concessions are rumored, out and out cuts have not been common enough to change quotations.

As a creditor of the Deslauries Column Mold Co., of Jersey City, to the extent of $3000, the Eastern Machinery & Equipment Co., Trenton, N. J., a Pennsylvania corporation, has obtained an order from Vice Chancellor Lane requiring the mold company to show cause why a receiver should not be appointed. The defendant has an authorized capital stock of $200,000 and is engaged in the roofing business. The mold company has assets of $436,514, and its liabilities are $149,651.

Business Divided on Redfield Plan

Skepticism Prevails as to Practical Application of "Price Suggesting" Method—Certain Departments Reported Not in Accord With Government's Own Advice to Start Buying at Reduced Level Recommended

WASHINGTON, Feb. 18.—Secretary Redfield's plan for suggesting prices for basic commodities to aid the industries of the country to carry on business, in order that labor may be continuously employed, forcefully emphasizes the government's utter lack of a constructive readjustment program, and the criticism aimed at the government for reckless expenditure of funds during the war. The absence of a definite program, and the criticism, are regarded as the foundation for business uncertainty and industrial unrest which Mr. Redfield hopes his plan will dispel. In this regard, apparently, he has more confidence in his fellow officials than have the business interests of country which have found some federal officials who could not be relied upon to help maintain the nation's industrial fabric.

Business interests which are to be called in, under Mr. Redfield's plan, have received no assurance they will not be violating any of the anti-trust laws. They have no assurance that even if statutes are not violated the government's purchasing departments will buy. They have no assurance that private buyers, who will watch the proceedings, will find the results warrant transactions. They have no assurance that, in view of the war industries board's price-fixing committee declining to continue prices, any of the things Mr. Redfield is proposing will bring the nation to a point of industrial stability any more speedily than will the application of the law of supply and demand.

Conditions in the government today belie any assurances which Mr. Redfield may hope his plan will give. Despite consideration of the proposal by the President's cabinet and any action which resulted in the submission of the plan to the President, and despite the President's approval, business has learned from experience, and is aware of the fact that under present conditions extreme caution is necessary in falling in line with the price suggestion idea. With some interests looking favorably upon the plan, and others decidedly wary, it might be well to consider some of the things which go to make up a composite picture of inharmony in the government.

Mr. Redfield is said to have opposed price fixing during war. Whether he was won over by the merits its application developed has not been made clear, but now, under his own plan, he favors it with modifications. The other departments for which the new plan is designed and which had an active part in the war price plan, felt that control should end with the new year, and, as a result, proposals which the steel, copper, chemical and other industries favored were not allowed to be submitted.

Secretary Wilson, of the department of labor, favorably detailed to congress Mr. Redfield's plan, but, almost simultaneously, the construction division under Mr. Wilson's department urged builders to buy and begin construction at once, pointing out that it did not believe prices would drop, and that it would be useless to wait. Federal Trade Commissioner Fort, in a speech in New York, pointed out the apparent necessity of price stabilization, and said additional legislation might be required to bring it about.

Secretary Redfield has declared no additional legislation is necessary, and from the statement that the plan was considered at the cabinet meeting, with immediate submission to the President, it was implied that the department of justice also had sanctioned it. Neither Mr. Gregory nor Mr. Redfield has shown just how the plan can evade antitrust laws which Mr. Gregory, a few weeks ago, went out of his way to tell manufacturers are still on the books.

Senator Kenyon recently introduced a measure in congress providing $100,000,000 for the development of public works. Some such plan was advocated by the President in a speech in congress, and Secretary Wilson and other cabinet officers have since espoused the project. There is doubt, however, whether the bill will be passed by congress.

Government Ignores Own Advice

While this measure is being considered and advocated by heads of the government who also are urging manufacturers and industry to keep operating, the only two government departments which are in a position to follow this advice are sitting back and waiting for prices to drop. These departments, the navy and the railroad administration, by their refusal to go ahead and use the several hundred millions of dollars appropriated for navy yard expansion, ship, car and locomotive construction, and railroad development are setting an example which is holding up private commercial buying and development.

The war department, overstock and trying to sell some of its surplus material and equipment, cannot be expected to take up much new work. The Emergency Fleet, with the future of the merchant marine undetermined, has reached the limit of its expansion. Foreign countries and buyers are absorbed, in their own problems and cannot be counted on to keep this country's plants in operation, although their demand for ships designed for their own needs cannot be filled in American yards because of the shipping board's policy of requiring its approval before such contracts are taken by American ship builders.

Charges have been made that the government was extravagant in its war expenditures. Without considering the merit of the charges, but realizing that a war bill of twice the size would have been approved if necessary to destroy the evil which threatened the nation and the world, the fact remains that the authorized peace development of the navy and railroads is being held up. This is believed to be due to the charge of extravagance, and also to the navy's prewar and the railroad administrations war reputations of never being satisfied with the prices quoted. Remembering this, and realizing these are the only two departments which might adopt the Redfield plan, manufacturers and industries are expected to be reluctant in responding to Mr. Redfield's overtures. Mr. Redfield has reiterated that his plan is not one of price fixing, but, after using the word "formulating," and trying to find a better one, he has found "price suggesting" more nearly meeting the idea in his mind.

As a typical example of how the Redfield plan will operate, the steel industry will be asked to suggest a possible price at which it might do business. This will be transmitted to government agencies, which will consider it and possibly state they might be willing to buy at that figure. Then the usual procedure runs its course, that is, requirements are advertised,

bids are received, and contracts awarded.

Prices bid are to be under or about Mr. Redfield's suggested price, but the suggested price is to be spread broadcast through the papers to indicate tentative price levels. He says the plan will not prevent manufacturers selling as high as they can or buyers from purchasing at the lowest figure possible. William M. Ritter, president of the Ritter Lumber Co., Columbus, O., and formerly in charge of the hardwood lumber section of the war industries board is the man back of Mr. Redfield's entire proposition and Mr. Redfield has placed him in official charge of the work.

Later this week the secretary will name a committee of six men other than those on the advisory committee already named, which includes W. B. Dickson, vice president of the Midvale Steel & Ordnance Co. The new committee will be the official price body and will represent the government, capital and labor.

Redfield Says Plan is Not Price Fixing

WASHINGTON, Feb. 18.—According to Secretary of Commerce William C. Redfield his plan to establish lower prices for the basic industries of the country without reducing wages has been concurred in wisely. In an address last Wednesday in New York City before the National Retail Dry Goods association, Mr. Redfield said his proposal has the approval of the treasury department, the war trade board, representatives of the federal reserve board and the War Finance corporation and thus far has been approved by every man of affairs and of finance to whom it has been presented. He asserted that many of those whose affairs would be concerned have approved it.

Secretary Redfield said that the plan is purely a matter of consent, not one of authority and that it is not in conflict with economic law.

"It merely seeks that men shall agree to that thing soon which economic law requires sooner or later," he explained. "It is not price-fixing. It is voluntary without any element of compulsion."

Capital, Secretary Redfield holds, should for its own sake stand the first shock of readjustment because of its being able to absorb this shock more readily and take reaction more quickly than any other element in the country. The spirit of men of capital today is fortunately turned in this direction, the secretary stated, and it has been fully shown that they are willing to take this view of the matter and to do their full part in making the necessary reductions without imposing serious burdens upon labor. Through this Mr. Redfield earnestly hopes that capital will not be forced to bring down wages now standing until the prices of commodities are also lowered to the relative wage rate.

The destructiveness of war both to merchandise and productive equipment makes it impossible for prices to fall soon to their prewar level, according to Secretary Redfield. "There is a great vacuum to be filled," he said. "The buying world in many countries has been economizing sternly for some years past and when once they get confidence that a reasonable price basis has been reached they will come into the market in such a way as to sustain prices and possibly, in some measure, even for a time to raise them. Everyone agrees that this great, latent business demand is here, ready and waiting. The greater the need, therefore, for using every effort to bring it into active effect as soon as possible."

Mr. Redfield holds that as the condition of the country is sound, the number of failures small, and bank resources immense, America stands firmly on her feet without fear of the future. "In a few months," the secretary stated, "we shall find our faces turned toward a bright and prosperous future."

Too, as Mr. Redfield explained, there also comes a growing demand from our allies for materials, tools and equipment with which to rehabilitate wasted homes and factories. These problems again merge themselves into another as difficult as any, namely, that of finance. Whereas before the great world war the United States was internationally known as the country which was always in debt to our neighbors, this country now stands out as the chief creditor, having the neat sum of approximately $10,000,000,000 loaned out on which to draw by cash, by services or by goods. Speaking of the debts of our allies, Mr. Redfield said: "Furthermore in order to pay what they owe they must be careful not to acquire further great debts but rather to conserve their buying power in our own interest as well as theirs."

British Embargo a Necessity

"Here," explained Secretary Redfield, "lies the solution of the so-called embargo that Great Britain has recently established concerning which some complaint here and there appears. It would not perhaps be unfair to remind ourselves, ere we complain of this embargo, that we have ourselves recently established not a temporary but a permanent embargo against certain lines of manufactures in which Great Britain and France have both done business with us. I imagine that English and Scotch whiskey and ale manufacturers and the wine producers of France have their own thoughts respecting the permanent embargo we have placed against them and it would be well for us to reflect whether if this fact which I do not criticize, ought not in some measure at least to temper our thought when we reflect upon what others have done to us." The embargo which Great Britain has established, Secretary Redfield holds, is on grounds necessary to her welfare and possibly for her safety. Mr. Redfield is of the opinion that as Great Britain owes us more than $5,000,000,000 it should not be expected that she buy from the United States in the same quantities as before and during the war.

"Surely, it needs no special insight," the secretary stated, "to understand that nations, like business houses and like men, who have been under circumstances of peculiar strain, need to safeguard their affairs in order that they may be able to pay in due time that which they owe and may resume the more quickly the normal relations which the avarice of an autocrat has so long caused to be interrupted."

"Unemployment is here," said Mr. Redfield, "not upon such a scale as we saw in the bad winter of 1907-1908 but enough to make it a subject for serious thought because the enemies of society are taking advantage of it in our midst to teach dangerous doctrines. Strangely enough this situation of unemployment is accompanied by strikes, so that to involuntary unemployment there is added the voluntary kind. We have seen the fruits of these conditions in Seattle, Butte, and elsewhere. Until spring every effort must be made to restore the normal course of business as speedily as possible. Time is of the very essence of value now and what is today done is worth much more than if it be put off until tomorrow."

Lower Prices

And Not Proposed Stabilizing Plan Needed Say Pressed Metal Interests

Questioning the wisdom of the Redfield plan for the stabilization of prices and asking instead that steel prices be reduced as quickly as possible to a lower basis the Pressed Metal association, comprising the companies producing metal stampings of all kinds and using approximately 600,000 tons of sheet, strip and plate steel, formally adopted a set of opinions on the business situation at its regular meeting in Cleveland Feb. 17. The association unanimously expressed and agreed to the following opinions:

(1) There is a very large potential buying power in the metal stamping industry and in other industries using steel as a raw material.

(2) There is a general attitude of hesitancy to place orders for steel and steel products and this condition has resulted and will continue to result in greatly curtailed production on the part of producers of steel, and on the part of manufacturers consuming steel products.

(3) This hesitancy in buying and consequent curtailment in operations are due to the weakness of the present steel market and the probability of lower prices.

(4) To stabilize steel prices at present levels would tend to stabilize other costs at present levels, and consequently interfere with the inevitable general downward readjustment in the cost of all products and commodities.

(5) We believe that for economic reasons the price of steel must be reduced and that the price of steel products must also be reduced before other inevitable readjustments tending to lower price levels can begin.

(6) We are of the opinion, therefore, that producers, consumers, labor, and the public in general, would be benefited by the stabilization of steel prices for fixed periods at substantially lower levels upon the initiative of the steel producers and that the sooner such results can be secured, the sooner industrial conditions will begin to improve.

(7) Since the element of time is very important and since unemployment of labor and idle productive capacity are already very great, and are increasing rapidly from week to week, we are not in favor of plans recently proposed by the secretary of commerce to counteract the above-described industrial situation. We believe government assistance would require several months to secure results and that in the interval a serious condition of unemployment and industrial stagnation would prevail.

War Department is Selling Surplus Material

Washington, Feb. 17.—While the war department is not making purchases for construction work when material it has on hand can be used, an announcement today from the office of the director of sales shows that large quantities of construction material and equipment, valued at approximately $12,000,000, as of Dec. 31, are being consumed inside the department. Half of this material is lumber, a contract for which has been made with producers to be delivered at market prices. Among other items included in the list are steel nails, bolts, nuts, rivets, building hardware, finished and raw materials for railroads, belting, cable, plumbing and heating supplies, electrical materials and fencing. The construction division, since Dec. 31, has made 800 transfers of surplus materials from completed to uncompleted projects. About $2,000,000 worth of building material has been absorbed in this manner, and the transfers will continue. The construction division has charge of about 90 per cent of all building materials in the war department. At each of the 476 projects there is a construction quartermaster, who will make sales of his own surplus under general instructions issued by the director of sales.

Favorable Decision

On Pittsburgh Basing Point Contention is Hoped for Later

Washington, Feb. 18.—Possibility of favorable action in the future in the matter of recognizing trade customs as to the Pittsburgh basing point and freight differentials in the iron and steel industry is indicated by another decision just returned by Comptroller Walter W. Warwick in passing upon government obligations for steel material. The new decision does not specifically state that the freight equalization involved should or should not be paid by the government. It is on this omission that the hope is expressed by iron and steel interests that later decisions are to come in which the trade customs will receive formal recognition.

Comptroller Warwick has declined to authorize the payment of a voucher submitted in favor of the Bethlehem Steel Co. for $3800 for common shell steel billets which were shipped to the E. W. Bliss Co., Brooklyn, from Bethlehem, and the price was made with a Pittsburgh basing point. The decision just made by the comptroller relates entirely to the formality of the contract. As soon as the senate accepts the conference report on the Dent bill validating informal contracts and this measure is approved by the President, this feature of the situation will be eliminated and a new case will have to be submitted to have the freight equalization recognized.

Mining Engineers

Hold 119th Annual Meeting—Labor Problems Receive Attention

New York, Feb. 18.—Problems of labor came in for particular discussion at the opening session of the 119th annual meeting of the American Institute of Mining Engineers held here today. More than 500 engineers were in attendance. Considerable attention was given to the use of vocational schools in mining communities to educate cripples, either discharged soldiers or civilians disabled by accident, and also to the prevention of sickness among miners.

Consideration of health problems was directed by Dr. A. J. Lanza, chief of the United States division of industrial hygiene. He suggested that physical examinations be given by state authorities and only men of physical fitness be allowed to work underground. He urged the installation of adequate sanitary facilities in the mines, and outlined the necessity for medical and surgical service.

In discussing the employment of mine labor, Herbert M. Wilson, director of the department of inspection and safety of associated companies, said: "Were the machinery available for friendly, personal, face to face consideration of problems, there would be fewer disagreements, fewer strikes and a better and more settled industrial situation. The necessity for some such medium for the exchange of views has resulted in the organization of labor and, in some measure, of capital, but as yet both parties, engrossed only in defending their viewpoints, endeavor to gain their ends by might rather than right."

The institute of metals division discussed various problems in a comprehensive manner. Included in the papers presented were: "Die Castings and Their Application to Our War Program," by Charles Pack; "Electric Furnace Problems," by J. I. McYardley; "Manganese Bronze," by P. E. McKinney; "Standards for Brass and Bronze Foundries and Metal-finishing Processes," by Lillian Erskine. A smoker was held this evening. A session on iron and steel was scheduled for Tuesday also a joint session of mining and electrical engineers on electric welding is to be held on Wednesday, the closing day.

The following officers were elected for the ensuing year: President, Horace V. Winchell, Minneapolis; vice presidents, Edwin Ludlow, Lansford, Pa., and A. R. Ladoux, New York City. Directors, J. V. W. Reynders, New York City; George D. Barron, Rice, N. Y.; Charles Frank, New York City; Louis S. Cales, Ray, Ariz.; and S. A. Eastern, Kellogg, Idaho.

Healthy State

Of Underlying Conditions is Reported at Pig Iron Meeting

The American Pig Iron association at its meeting at Pittsburgh Tuesday received the report of the election of David T. Croxton, president of the Cleveland Furnace Co. as vice president of the Cleveland district. The other districts are expected to name their vice presidents shortly. Very satisfactory reports were made of the progress being met with the installation of the uniform cost accounting system at the various furnaces. Since the announcement by J. G. Butler Jr., of Youngstown, O., that he had relinquished the task of receiving and compiling production statistics on pig iron over a long series of years, the association has been considering the taking over of that work, and at the Pittsburgh meeting it was decided to secure the office machinery employed by Mr. Butler to continue his valuable work. This matter was placed in the hands of Secretary John A. Penton to work out.

Informal reports of the condition of the pig iron trade in both the north and south were listened to with interest. These showed a healthy state of business not only in iron and steel but also other lines of trade. The slowness of the volume of new business to take definite shape in all lines of trade was commonly commented upon, although it was pointed out that pig iron shipments were keeping up, few holdups being mentioned and the iron being piled is a comparatively small proportion of total production. Sales generally were for small tonnages in most tonnages, but it is understood some iron actually has been sold into last half of the year, this latter case being rather exceptional however.

Independents Oppose Plan to Raise Ore Taxes

Independent ore operators in Minnesota and Michigan are proceeding actively with plans to reduce the cost of production during the coming season. In Minnesota they are concentrating their efforts to have the railroad administration reduce the high rate on ore from the mines to docks, while in both states they are aroused by efforts to have their taxes increased. The proposed plan to tax stockpiles is declared to be confiscatory, and the independents have told the legislators that if more equitable rates of taxation are not established a number of mines must be closed. Politics has always played a large part in the efforts of certain elements in both states to increase taxation on the mines and their products, a popular method of winning public approval being to antagonize the mining interests. On the other hand, the independents hope to overcome the political propaganda with actual facts and figures relating to the cost of production and to show what their capacity for doing business in competition with interests elsewhere means to the two states.

Officials to Decide on Price of Railroad Castings

Washington, Feb. 18.—Robert S. Brookings and officials of the purchasing department of the railroad administration tomorrow will meet steel foundrymen who hold contracts for castings for cars and locomotives ordered for the railroads last year. The prices named in the contracts were those contained in the American Iron and Steel institute's price schedules, and were subject to revision by the price committee of the war industries board. The revision never was completed, and the railroads and foundries now want this matter settled before Mr. Brookings, who is chairman of the committee, retires March 1. The railroad administration never accepted the institute's recommendations, except as approved by the war industries board's committee, and not always then, as was true particularly of rail prices. Now that the war is over and the price committee is about to quit, the railroad administration will force manufacturers to accept lower prices than the schedule provides. The action tomorrow, it is said, will be confined solely to those castings going into the 100,400 cars and 2030 locomotives.

The Non-Ferrous Metals

Copper **Lead** **Spelter** **Tin**

	Copper	†Spot Straits, tin	‡Lead, New York basis	Spelter St. Louis basis	Aluminum	Spot antimony
Feb. 12	18.00	72.50	5.00	6.45	33.00	7.00
Feb. 13	17.25	72.50	5.00	6.40	33.00	7.00
Feb. 14	17.25	72.50	5.00	6.30	33.00	7.25
Feb. 17	17.25	72.50	5.00	6.35	33.00	7.25
Feb. 18	16.75	72.50	5.00	6.35	33.00	7.25

†United States Steel Products Co.'s price to consumers, dealers and jobbers.
‡American Smelting & Refining Co.'s price.

NEW YORK, Feb. 18.—Copper prices have come down about a cent in the past week, but without stimulating business or even bringing out substantial inquiry. The red metal today was reduced to 16.75c by small producers, while larger interests quoted 17c, against general quotations of 18c about a week ago. The buying movement that appeared a short time ago, quickly dried up and proved to be only a temporary affair for immediate needs. With orders received by brass mills and foundries still small, it does not seem likely that any change for the stronger side will be made soon, and in fact some followers of the market predict that two or three months will roll around before any buying of real quantity is begun, while several months will pass after that before consumption can catch up with surplus. American producing representatives are in Europe, but nothing has been heard on exports as yet. In a conference at Washington a few days ago between government agents and producers, it was agreed by the former that surplus stocks of copper and brass in the hands of the war department, should be fed to the market gradually. Details are yet to be worked out.

At this meeting, lead interests also were represented, and it was decided that similar action should be taken in regard to lead possessed by the war department. Lead, unlike copper, has been firm for a number of days. One reason for this firmness is that at the meeting in Washington on disposition of stocks, it was announced that the surplus in the hands of the department was a very small proportion of the year's output. Good inquiry for lead appeared several days ago and more inquiries have come out. Buying, however, has not been brisk. An increasing number of producers, on the other hand, are not quoting the metal. A number of factors insist that the bottom price is here, and that the next change will be upward, but no prediction has been heard as to how soon such a change might be made. The American Smelting & Refining Co. price is 5c New York, 4.70c St. Louis, while outside sellers have held at the same level.

Spelter again has had a little flurry of strength. Toward the end of last week prices were weak, but on the last day dealers bought good quantities of the metal around 6.20c to 6.25c St. Louis, and today the market is around 6.35c, with some quotations a little higher. Some buying has been done by consumers.

The tin situation remains unchanged and quiet. Nothing is heard in regard to buying. Stock of the United States Steel Products Co. is 72.50c, New York and Chicago, and intermediate points, and domestic smelted tin is 68c for electrolytic, 66.50c for 99 per cent.

Aluminum is quiet, both for virgin and remelted. The former is quoted at 33c for the rest of the year by the producer, and No. 1 remelted is offered by remelters at 30c. Remelters quote No. 12 at 27c to 28c.

Antimony prices have been moving about lately, mostly upword. A little selling has been done and quotations today are 7.12½c to 7.25c.

Progress in Blast-Furnace Design

Modern Advances in Metallurgy Are Paralleled by Better Adaptations of Mechanical Construction—Temporary Shutdowns Reduced by a Few Changes in the Detail of Blast-Furnace Lines

BY J. G. WEST, Jr.

BLAST furnace design has not reached a point of mathematical precision, where amount of product can be figured within a small percentage of the desired theoretical production, such as the mechanical and electrical engineers might do with the designs of large turbines, generators, etc. We often hear of a turbine design projected for thousands of horsepower for a working machine, with results which materialize close to contract figures.

Not so with most metallurgical furnaces; particularly the blast furnace which no one yet has been able to radically alter in its process methods. Most results that are gained may be shown by figures of comparatively small percentages, and these as a rule have been developed over a long period of years of experimentation.

To reach the point of efficiency, production, and smoothness of operations, which is the aim of all, certain lines of procedure must be observed in the assembling of the different ends to get the desired results. One would classify these under the four general heads.

First, perfect knowledge of the material must be had beforehand, both physically and chemically, and these should have as much regularity as possible; *second,* proper designs of apparatus; *third,* the organization must be keyed up to the highest point of skill, and fully educated in the program to be pursued, and in the results desired. The modern blast furnace is no longer a one-man proposition in its regulation; *fourth,* the mechanical equipment must keep running with a smoothness that will not hold back any of the other developments. Often this is found to be a weak point in the working out of new designs in the metallurgical end. No one of these points can be neglected if the whole proposition is to be rounded out.

Abstract of a paper presented at a recent meeting of the American Iron & Steel Institute. The author, J. G. West Jr., is general superintendent of blast furnaces, Jones & Laughlin Steel Co., Pittsburgh.

Early Operating Data

Up to the year of 1900, the majority of the furnaces of the steel making companies had been served with a superior grade of coke from the old Connellsville basin, with a fixed carbon from 89 to 90 per cent, ash as low as 10 per cent, and sulphur around 0.80 per cent. They had been working on ores which caused little inconvenience, the metallic contents running high with small variations. We find in parallel the use of all facilities that may have been at hand to give good tonnage, coke practice, and general efficiency. This period continued until we have the climax in the big production of the Duquesne, Edgar Thompson and Illinois Steel Co.'s furnaces.

From 1905 and for the next five years there is a quick change in the physical characteristics of the materials used. Coke for the most of the furnaces was made from coal that was not as good as that of the old Connellsville basin. As a rule it was soft, and small. It carried a lower fixed carbon and higher ash as shown in the following table:

Year	Ash	F. C.	S.
1900	10.74	88.04	0.93
1901	10.79	89.13	0.86
1902	11.62	88.20	0.86
1903	12.98	86.53	0.86
1904	11.33	87.50	0.86
1905	12.12	86.69	0.85
1906	12.41	86.33	0.85
1907	12.04	86.61	0.83
1908	12.44	86.62	0.84
1909	12.71	85.78	0.87
1910	13.44	85.83	0.94
1911	13.01	85.75	0.91
1912	12.79	85.75	0.94
1913	13.51	85.43	0.95
1914	12.80	85.00	0.90
1915	12.50	86.00	0.94
1916	13.53	85.00	0.90
1917	13.40	85.90	1.07

This variation in material naturally required different methods of operation. Irregularities developed which led to a great decline in the efficiencies attained by the representative plants of the country. Many of us are familiar with this decline and it was emphasized by low tonnages, high coke consumption, due to making

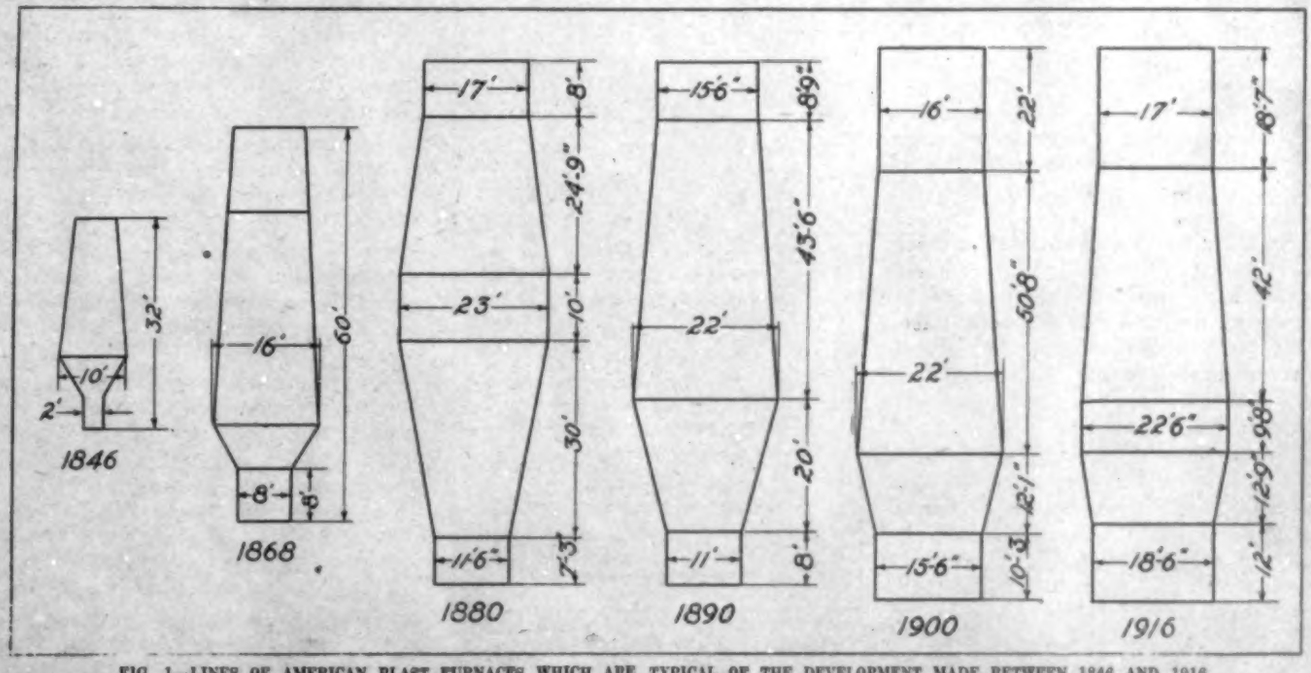


FIG. 1—LINES OF AMERICAN BLAST FURNACES WHICH ARE TYPICAL OF THE DEVELOPMENT MADE BETWEEN 1846 AND 1916

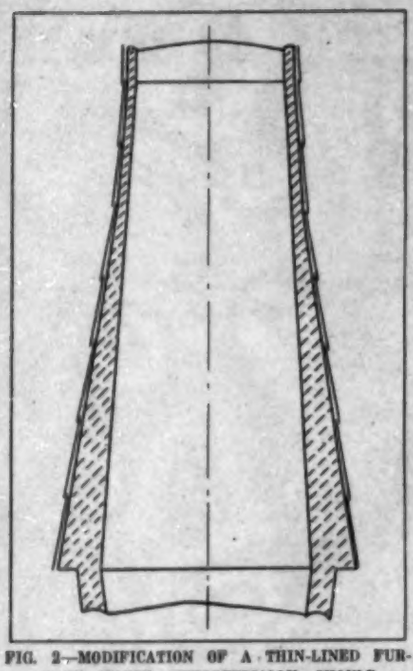


FIG. 2—MODIFICATION OF A THIN-LINED FURNACE WHICH THEORETICALLY SHOULD PRODUCE 600,000 TONS

more flue dust, greater losses and the attending troubles incidental to irregularity of furnace operations.

The most pronounced changes were the lowering of the blast temperatures, more irregular movement of the furnace, higher flue dust production, a large amount of accidents, high coke consumption, etc. This period would show an attempt to overcome lower production by increasing the blast volumes, which in itself is liable to counteract the best results that may have been obtained under certain conditions. Attending this high wind usage we find a quicker deterioration of furnace lines which accelerates bad practice.

Finer Ores Used

In the meantime the consumption of Mesabi ores increased in some representative companies from 59 to 81 per cent. In some cases and for short periods this rose to 95 per cent. The physical properties of these ores changed from a fairly coarse mixture to one that might carry 15 per cent through the 100 mesh sieve. The mere tabulation of sieve tests of percentages of Mesabi used would be a small part of the actual physical change that took place.

From 1905 to approximately 1910 we find no lasting development which called for any upward turn to better general results, with possibly the exception of an odd furnace here and there. In the year 1910 a marked change was made in the development of the hearth diameter as for instance in the blast furnaces of the South Chicago plant of the United States Steel Corp. With permanent results being accomplished, it blazed the way to apparent better efficiencies.

About this time we also find a systematic campaign going on for an improvement in the quality of the fuel and fluxes used in the blast furnaces. This move in itself means time and study, and should be given due credit. These developments gradually spread through the corporation's plants, and later through the line of independent furnaces, making all grades of irons.

Blast Temperature Increased

It can be noticed that as furnace operations commence to be smoothened out, we find large tonnages, small losses, gradual lowering of the coke consumption, and particularly the use of higher hot-blast temperatures at the representative larger plants. In a great many cases these heats increased from 750 to 1100 degrees Fahr. average temperature lines. Those acquainted with these different developments know the difficulties that attended the progression. The production of flue dust decreased from around 500 to approximately 200 pounds per ton of metal, showing much smoother operations. This turn in the development came to a climax in 1915 and 1916. We find supporting the country's output of steel, a phenomenal blast-furnace operation at a number of plants which shows an average line of increased production, lower coke practice, etc. The highest of these average lines for the year were obtained at a number of plants and are as follows:

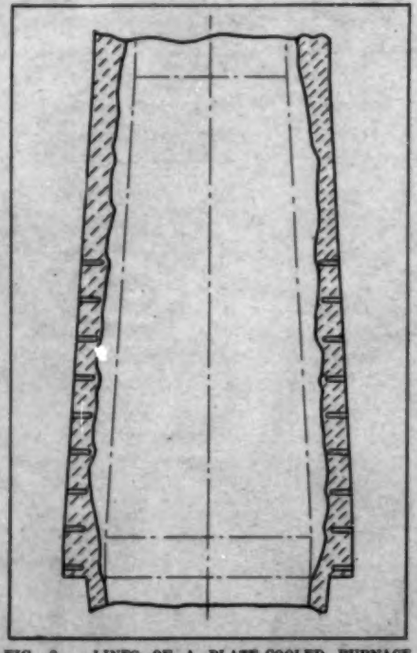


FIG. 3 — LINES OF A PLATE-COOLED FURNACE TOWARD THE LATTER PART OF A SUCCESSFUL CAMPAIGN

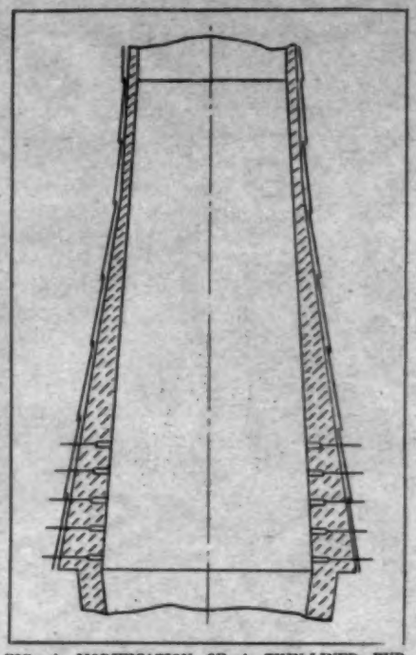


FIG. 4—MODIFICATION OF A THIN-LINED FURNACE WITH PLATES INSERTED IN LINING ABOVE THE MANTLE

Plant	No. of fces.	Av. tons daily for year	Coke consumption
1.....	11	539	1878
2.....	1*	608	2107
3.....	4	535	1867
4.....	4	529	2197

*2 Fces. in group.

All these plants worked on a different kind of coke, fixed carbon, etc. The rounding out of these developments in most cases is all the more interesting because they were accomplished when using material that in former years gave only ordinary practice, and one will have to study what change took place in furnace design to make any conclusions. Since 1917 the furnaces of the country have been so upset by irregular operations, material, etc., that this time should not be taken into consideration.

The term *lines* of a blast furnace is commonly understood to be the internal shaping of the brick work, expressed in dimensions of feet, inches, degrees of angles, etc., and is the bounding line of brick work, etc., called linings. Starting at the top of the furnace we encounter a section that is subject to a comparatively low heat, but is given rough usage, due to the abrasion of material first coming in contact with the brick work, and being deflected to move in a vertical plane downward.

Protection of Lines

For years there has been no great variation in the shape or size of this part of the lines. Its protection is one of greater interest. Some furnaces are built without any protection, the

brick being held firmly together with a small percentage of cement, and good results have been obtained. Fig. 6 is a section of the upper wall of furnace which produced 670,000 tons of metal, with a coke consumption of 1925 pounds per ton of metal, with no renewal of walls. Some furnace plants renew these during the campaign, others find it gives good results for quite a length of time.

In Fig. 5 there is shown a successful method employed by some of the large plants of the country. It consists of steel sections tied back to the shell. Fig. 12 is one of the most common designs of stock line protection and consists of cast-iron sections imbedded directly in the brick work. In practice, if they are put in correctly, their life is as long as that of the average lining. Fig. 11 shows a method that also has given good results, and consists of steel bands imbedded in the brick work. In both methods of design shown in Figs. 11 and 12 it is necessary that perfect bonding be made with the refractory brick in order to hold. The loss is quickly felt around this section, in case something is misplaced.

Proper Protection of Stock Line

These protection plates are variable for different distances above and below the stock-line level. If they are placed too far below they may go rather early in the campaign, owing to some local heat action which would destroy them. It should be born in mind that irrespective of the distance protected by them, the brick wall will cut away badly just below the points unprotected. Fig. 7 shows large cast-iron or steel sections with water pipe inserts. Their use is not general but they have given good results. Stock line protection is of the highest importance, and unless we maintain a definite shape, bad furnace operation is experienced at all times, but when it is maintained properly, good practice results, even though other parts of the lining may show great weakness. Too much stress cannot be placed upon a proper protection.

In the period of large blast volumes a rapid deterioration of the middle parts of the refractory lining causes considerable effort to be made in the holding out for longer life of lining. This brought about several modifications in the way of cooling above bosh lines. The wide difference in the construction of a blast furnace comes at a line known as the bosh, and is a point in the temperature scale of the whole process where there is a change in the state of the materials.

This change in mathematical measurements is approximately 12 to 14 feet above the point of the blast entrance, and on analysis appears to be the same in all furnaces of different sizes and dimensions. Here we find a fairly high degree of heat given by most authorities, and substantiated by rough checking to be somewhere between 1850 and 2000 degrees Fahr. This degree of heat causes but little change in the physical state of the materials charged, only a slight softening. One

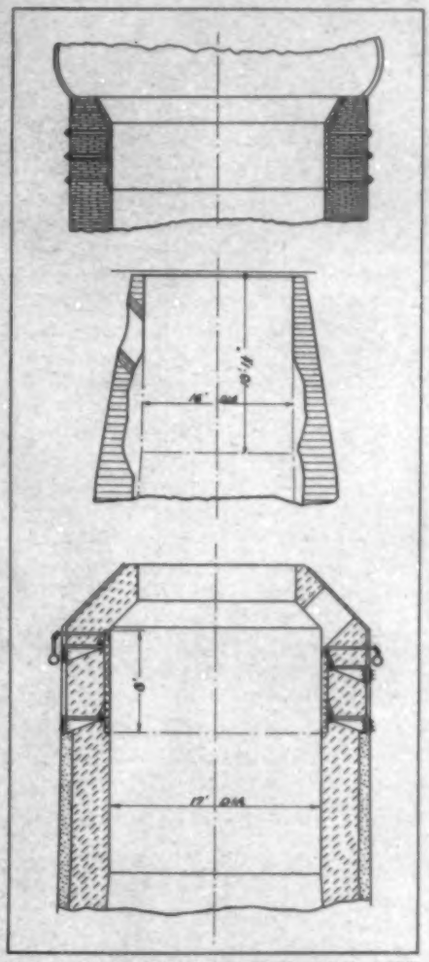


FIG. 5—UPPER WALL DESIGNED WITH STEEL SECTIONS BOLTED TO THE SHELL. FIG. 6—UPPER SECTION OF A STACK AFTER PRODUCING 670,000 TONS METAL. FIG. 7—METHOD OF COOLING UPPER SECTION

is inclined to think in ordinary working condition there should be but little fusion at this point. When there is a fusion it makes its appearance in the form of the furnace hanging up. This degree of heat would not ordinarily injure any of the refractory materials used in construction. However, this middle section is subjected to such an erosion, chemical reaction, pressures, and swelling of the charge, that it is quite independent of so moderate a temperature. The wearing away of the refractories is proportionate in all heights of furnaces, and follows the chemical changes closely which take place inside.

Before 1905 the average brick work in most blast furnaces approached closely to 60 inches at the mantle and was constructed sometimes in two walls. About this period there were some remarkable tonnage records turned out on the lining life, with fair coke results, although efficient coke practice was no doubt sacrificed for longer tonnage records. At some plants as high as 1,327,000 tons were produced on a single lining. This was following closely after the English practice of thick walls, but a more rapid driving coupled with the finer Mesabi ores caused the thick walls to be gutted badly. Also a saving was attempted on refractories by the grinding of old material when making brick for the new linings. All these resulted in more frequent periods of tearing out and rebuilding, the idle time percentage being considerably increased. In the tearing out of the thick walls it was noticed that a large percentage of the brick was still good.

Thin-Lined Furnaces

About 1906 the thin-lined blast furnace made its appearance from Europe. Great results were anticipated for it in the reduction of the time necessary for the relining period, and with the hope that by cooling the surface, the blast period would be indefinitely prolonged. It was also thought this lining would be subjected to conditions of operations which were impossible with the thick lining. Visions were had of its ability to make large tonnages, and constant coke practice.

The United States Steel Corp. had these furnaces built in four districts in order to get the different results under different conditions of management, material, and operating conditions. In each case the brick was fitted tightly against the steel shell, the outside of this shell being cooled with water.

Figs. 8 and 9 show rolled-steel sheets riveted together and buckets fastened to the shell, the water for cooling overflowing from one line of buckets to those below. This was the early type. Fig. 10 shows cast-steel sections bolted together, with water running all the way from the top to the bottom of the furnace. This system was tried out only at one plant and is still in use with only slight changes. The data following will show some of the work of furnaces lined with 9-inch brick:

Plant	Campaign	Tons per day	Total prod.	Coke per ton metal
1.....	1	435	175,000	1948
1.....	2	418	218,000	2161

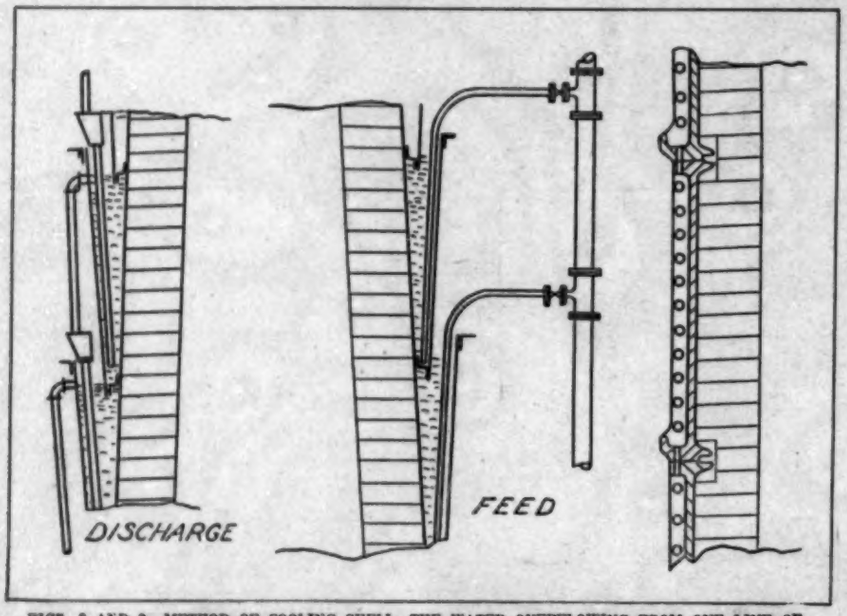
In the thickness of brick the life

was found to be too short for a commercial proposition, owing to the fact that some other sections of the furnace were expensive, and took time to rebuild. Practically all these furnaces have since been relined with slightly thicker brick work. Thirteen and one-half inches of brick work which was next used, laid in thin clay and butted against the shell. By increasing this thickness 4½ inches better results were at once obtained, and operations were smoother, for a longer period. Data on these lines is as follows:

Plant	Campaign	Tons per day	Total prod.	Coke per ton metal
1.....	1	500	299,000	1954
1.....	2	481	243,000	2136
1.....	3	526	454,000	1934
2.....	1	531	295,000	2076
2.....	2	497	217,000	2111
2.....	3	522	222,000	2050
2.....	4	500	200,000	2144

At plant No. 1, the tonnage gained on the increased thickness of 4½ inches of brick work was 136,000 tons, and the average coke consumption throughout the lining life was also better. It should however be noted that the 9-inch lining had to suffer for all the mistakes made in construction. The 13½-inch lining following, necessarily profited by these corrections. Some of these construction difficulties were interesting, and were seen in the form of cracking of the middle section, cracking of the shell even with water held against it, as in the bucket type.

At first angles were also used to support the brick work, these being done away with at some places. This type of furnace was thought to be particularly adapted to the making of ferromanganese, ferrosilicon, spiegels, and other high-coke irons. They lasted fairly well in this work but did nothing to uphold any unusual claims. As a rule they would be blown out on account of too much water getting into the stacks. It was noted that these furnaces first became weak in the same relative position as the thick lines. It is interesting to compare the work of these furnaces for certain periods, with thick lines, under the same management, and it is observed that while the thin lines were in fair shape the work was almost equal.



FIGS. 8 AND 9—METHOD OF COOLING SHELL, THE WATER OVERFLOWING FROM ONE LINE OF BUCKETS TO THOSE BELOW. FIG. 10—IN THIS TYPE OF COOLING, THE WATER RUNS FROM THE TOP TO THE BOTTOM OF THE FURNACE SHELL

The following table shows thin-lined furnaces compared with others in the same group, during the period of runs:

Furnace	Thickness of wall	Av. daily tonnage per yr.	Coke consumption per ton iron
1.....	Thick wall	533	2056
2.....	Thick wall	535	2010
3.....	13½ inches	510	2095
		(Monthly run)	(Monthly run)
1.....	Thick wall	543	1702
2.....	Thick wall	545	1742
3.....	13½ inches	537	1904
4.....	Thick wall	567	1820

The general comment on these furnaces, is that there have been none erected in the last few years. This is in spite of the small sum necessary to cover cost of relining, and idle time having been reduced to as low as two weeks between blasts. Those concerned in their operations have favored somewhat thicker lines. Several of this type will be modified, as shown in Figs. 2 and 4, and 17. The design shown in Fig. 2 should prolong the life of the lining, up to theoretical estimations, of 600,000 tons.

The most serious objections to the construction of the thin-lined blast furnace is that once we have the heavily constructed shell the lining cannot be altered quickly, unless considerable time is taken to remodel the shell in some manner. If it were found practical to assemble other parts of the lining as quickly as is done the section from the mantle upward, there would still be high hopes entertained of the thin-lined blast furnace.

With the experience obtained on the thin-lined furnaces of 9 and 13½ inches of brick work, there have developed modifications which call for lining 22½ inches in thickness made in two bricks, butted tightly against the steel shell, and sprayed with water when necessary. An accurate measurement of the wear was taken on this furnace after it had produced 220,000 tons of metal, it being out of blast on account of no demand for the product. It was found that the lining had only worked back a few inches. It was put back into blast after standing two years, and has produced to date more than 530,000 tons of iron.

Furnace Made Favorable Run

Its record during this period compared most favorably with the thicker lined furnaces of the same group, no trouble being experienced with the shell taking water. However, similar comments can be made on the 22½-inch lining, that is, the lining cannot be changed widely from what is originally planned, unless it is decided to make the volume of the furnace smaller.

We now turn to another form of holding the lining above the mantle section. In this method cooling plates are securely buried in the brick work of different thicknesses, and are usually in position for the linings life. The methods of insertion and distribution over the stack area vary widely. The usage has in many cases reduced the thickness of the brick lining. In other cases however we find that the lining is made as thick as formerly.

The L-type cooling plates usually installed in 31½-inch linings are made of cast-iron plate, with coils of pipe embedded. This method of construction has not been used extensively. Another method used for protecting the middle section is to place the cooling plates flush with the face of the 22½-inch lining. Results experienced did not give the best efficiencies, nor was there any great extended life of blast by the use of this method. In most cases we find that plates which have been installed in 40½-inch lining have been placed back of the face of the lining. Some low coke and good tonnage figures have been obtained

with furnace lines built in this way.

The most popular method of cooling a 52-inch lining is to insert about seven rows of cooling plates in the lining just above the mantle. We find that as much as 22 inches of brick is built in front of the plates. It is clearly demonstrated that the placing of the plates back from the face of the brick work adds to the smoothness of the working of the furnace. In plants where this is used, the life of the lining is extended considerably. The coke practice is influenced considerably toward the end of the life of the lining.

In place of using bronze plates cast-iron coolers with pipe inserts have been used. They have not been as successful as the bronze plates because they burn away much quicker, and cause more irregularity of the working of the furnace. Many blast-furnace managers have not paid enough attention to this cooling, but have preferred to give only a small cooling space, a few feet above the mantle.

This has not been of much advantage as far as we know, owing to the fact that the lower part, cooled by these plates, does not give away nearly so frequently as the other parts of the lining. In some cases this arrangement caused trouble, where the coolers failed during the early part of the campaign, and had to be abandoned.

Although the cast-iron coolers are much cheaper, there is no comparison in the results obtained when using bronze plates owing to the fact that few of the latter are apt to fail. Where plates have been used for prevention of wearing in the upper lining the most successful campaigns have been experienced with the plates set back from the face of the lining at the time the furnace was blown in. The wearing away of the lining between the cooling plates becomes irregular towards the last part of the furnace campaign. Fig. 3 is representative of this condition.

Campaign is Dubious

Furnaces of this type work irregularly when old. Although they show long campaign periods they do not produce the highest daily tonnage, nor the lowest coke consumption. It is questionable how long a furnace should run for the best of efficiencies, because an extended lining life may not always mean the best results that are possible.

With relatively lower blast volumes returning we find large tonnages, and longer lining records being made on thinner linings with no cooling. A 31½-inch lining is still in use and has produced 506,000 tons of iron. There are also official records of linings, 36, 40½, 42 and 45-inch, that have all produced above 500,000 tons of iron and are still running.

In looking over the records of linings, we find that an unprotected wall of 52 inches at the mantle, is used extensively. Often in blowing out, these linings are only weak at the stock line and the middle section. This type of furnace has produced most of the records made on coke consumption, tonnages, etc., during the last few years.

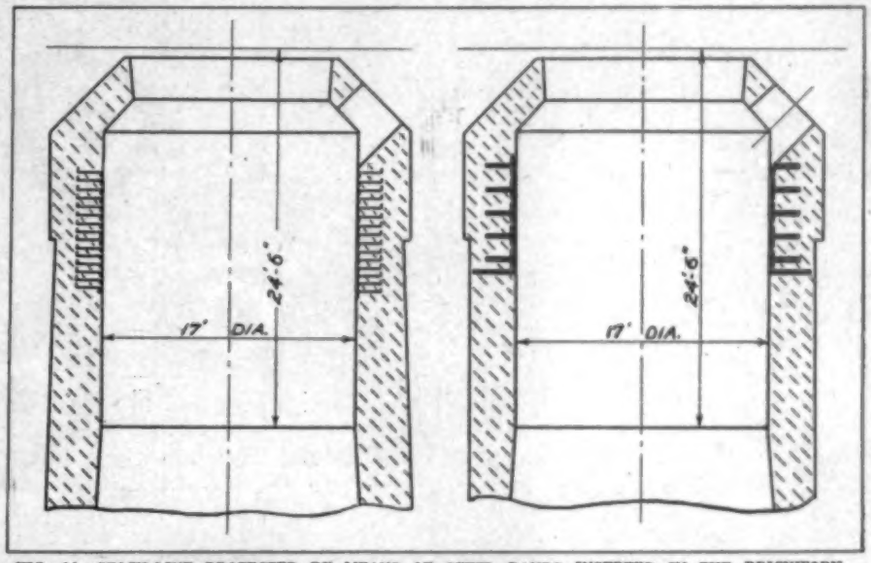


FIG. 11—STOCK-LINE PROTECTED BY MEANS OF STEEL BANDS INSERTED IN THE BRICKWORK.
FIG. 12—THE MOST COMMON PRACTICE IS TO INSERT CAST-IRON SECTIONS IN THE BRICKWORK

From a study of the worn out lines there is no question that the thickness of brick work could be reduced at different parts of the stack. This in itself means a saving in labor and idle time when replacing. When tearing out after making 670,000 tons of metal, the brick work was still in fair shape. It can be noted also that this brick work is butted direct against the shell, so as to aid radiation or cooling effect. The large packing space between the brick work and the steel shell may be one of custom, rather than need, as there are only a few shell failures out of the large number in use, and these failures occur chiefly on shells that are old.

The added radiation introduced by having the brick work butted against the shell should produce a longer life of the lining, and it becomes of no purpose to insulate the brick work of the stack owing to the fact that the internal chemical actions, etc., detrimental to the brick work on the inside face of the lining, are retarded by cooling. We have no refractory that will stand up without being cooled on some surface. If this were possible, 40 inches of brick work would last as long as the lining would do efficient work, owing to the fact that if the lines were to wear as large as the brick work would allow, the furnace would no doubt be giving considerable trouble.

Life of Lining

It is problematical as to what tonnage should be gotten out of a lining, and the average of a series of campaigns is the best rule to use. We know that cases arise where the lining lasts for an indefinite period, while others made from the same quality of material, go quickly. At least 500,000 tons of iron should be produced on a 40-inch lining. Manufacturers of refractories are making great efforts to produce good material, and it is hoped that their researches will lead to a combination of materials that will give longer wearing qualities. There have been fair records during this last high-production period.

Below the mantle section there is a sudden change of the state of the materials, caused by the rapidly increasing temperature, the mixtures becoming soft, semiliquid, and producing great pressure and wear. These temperatures, etc., are sufficiently high, to cause a complete fluxing or melting of any refractories ordinarily used. Air cooling alone will not fill the requirements. This been overcome through years of experimentation by introducing systems of water cooling, which have the effect of maintaining a balanced thickness of walls. The inside surface early in the blast period becomes coated with a conglomeration which maintains a wearing surface that makes up or reduces

in thickness, depending on the internal temperature of the furnace conditions.

The method of placing the cooling plates vary in different localities, there being differences between the rows, the number of rows, and the covering of the edge of the plates with brick work. At the same plants where the opportunity has been offered to judge the difference in the working of the furnace, with and without brick in front of the coolers, there is strong indorsement in favor of covering up the edge of the coolers before starting.

This coupled with bad distribution caused an undue amount of copper loss, the cast-iron boxes becoming so warped that it was necessary to drive the cooling plates inside the furnace, when they required changing. If perchance this construction happened to be used with a poorer grade of fuel, further trouble also developed.

Tuyere Section

Plenty of opportunity is afforded to vary the manner in strengthening the bosh at the tuyere section, and it should be borne in mind that this area stands the most crucial actions of the furnace. Around this section there is the highest temperature that is attainable in the whole process. Any effort that is used to skimp on the cost of material around this section usually reflects back to the idle time a furnace may be off on account of miner breakouts.

The tuyere coolers are sometimes placed flush with the edge of the brick work, and others are a few inches back at the start of the blowing in. The number of tuyere openings, at the modern plants, vary from 10 to 12. The results obtained with 12 tuyeres are no better than those obtained with 10. There is not a great deal that can be said on this matter to give any conclusions.

The outlet for cinder or slag does not show any wide variation in its distance from the tuyere area, and its protection is usually constructed of a cast-iron body with water pipe inserts. Some superintendents prefer to use a bronze cooler but this does not give any longer life, and is more expensive. The height of the cinder notch above the tapping hole varies with the depth of the well or hearth, and is only noticeable on the design of the deep-well furnace, there being some comment that the cinder notch can be too high above the tapping hole, in order to give the best results.

The hearth section is interesting in the fact that it varies in depth in the larger furnaces, and in its protection. In a type of large furnaces the hearth is made so that the iron is cast in six-hour periods. Holding the iron in the hearth is carried on without any serious damage. The larger hearth, theoretically should give fewer stops, and more tonnage. If the hearth is too large, some furnacemen believe that it influences the kind and quality of iron.

The brick walls of the hearth vary from 22½ to 60 inches.

Owing to the static pressure and erosive actions of the metal and cinder, there should be no tendency to slight any quantity of brick work. The bottom of the hearth is commonly made of blocks which are slightly larger than those used for the walls. There have been numerous methods tried to make tighter construction, by shaping the brick, etc., but there is no great claim that can be made for any of these.

In some plants we find what is known as a subjacket placed at a slightly lower level. The tight jackets are usually backed up with brick and cement. In spite of long years of study with the best materials, and workmanship, breakouts still occur. The latter, however, are handled much easier than in the old days, that they do not cause such bad losses.

Some of the first furnaces to give consistent high production were made with the boshes 23 feet wide, and there was a tendency to make the furnace higher up to 105 feet. The operation of high furnaces, has given satisfaction in the places where used, but the design has not spread widely.

Before the year of 1910 a change in the bosh lines was started consisting of a shortening of the distance from the tuyere to the bosh line, and widening of the space from wall to wall at the tuyere coolers, thus straightening the angle of the bosh. At this time a great deal of discussion was aroused over its possible success, as the theory of blast penetration was still held by many. It was a number of years before the large hearth was recognized.

In the exposition of this idea, the Chicago furnaces of the Illinois Steel Co. made great advancements. The success was shown in the yearly furnace record of over 2,000,000 tons of iron on a coke consumption below 1900 pounds per ton of metal. If the fuel is soft, small and irregular, all efficiencies at hand cannot be used to the best advantages.

In obtaining some of the results of the last four or five years in coke practice, and tonnages, there are plants which have worked continually under conditions of regulations, whereby for long periods at a time, it would have been a difficult matter to have increased the burden more than 1 or 2 per cent, and this when using material that in former years was condemned.

The 1000-ton furnace is not an idea that will be abandoned but will be attained, whether along the present lines, or a complete revolution of designs, no one knows. Science has not been able to go any faster than practice has allowed.

The temperatures within the furnace are sufficient to do all the work of reduction, etc. The time element necessary for reduction is stationary within certain limits. Where this time element is hastened through unusual, unpremeditated, and uncontrollable conditions we find abnormal productions, efficiencies, etc., for short runs.

If, as in other lines of science, progression is by spurts rather than by steady increase, then these points of high production, lower coke practice, etc., will outcome gradually closer together, and the average lines of results desired will be gradually raised.

Modern progression of metallurgy has been paralleled by better adaptations of the mechanical construction. Without the perfect mechanical construction a steady increased production would have been retarded. The simplest of details have been worked out to enable the lost time of the furnace operation to be reduced to a minimum.

In the operation of any design at a blast furnace plant, the personality of the operatives is one that reflects largely on the results attained, and these should be of the best type possible, owing to the fact that nowhere do we find so large a responsibility placed on as small a crew, as around a modern blast furnace.

Seek Pure Oxygen Supply for Smelting Industry

Dr. Frederick G. Cottrell, chief metallurgist of the bureau of mines, department of the interior, in accepting the Perkin medal awarded to him for distinguished service in chemical research at the Chemist club in New York recently, outlined certain investigations now being undertaken by the metallurgical division of the bureau, which, if successful, will result in a real revolution in the fundamental industries of the country.

Dr. Cottrell, in telling the chemists of this important work said in part: "When, at the suggestion of Sir William Ramsay, the British admiralty first studied the possible use of helium for balloon purposes they felt that the

expense of production would be prohibitive. First, on account of the great scarcity of the element and the very great dilution in which it was found in the atmosphere and in other gases; and, second, because of the expense of the processes of separation then known to the admiralty.

"When this information came to the United States bureau of mines it was remembered that some of the natural gases of Kansas had been found by Dr. H. P. Cady of the University of Kansas to have over 1 per cent of helium in them. The separation of helium from these gases could best be accomplished by the same general processes of liquefaction and distillation as are used to separate air into its nitrogen and oxygen for industrial purposes.

"It so happened that the metallurgical division of the bureau of mines had been making a study of these processes in the hopes of finding a way to sufficiently cheapen the production of oxygen from the air to allow its general use in metallurgical furnaces and other large scale chemical and industrial operations. If this were possible it would work a real revolution in these fundamental industries. Take, for instance, the smelting industry alone. We now concentrate everything that goes into the furnace except the oxygen of the air which we add with four times its volume of inert nitrogen and thus undo much of the effect of the concentration of the other constituents. If we could use pure oxygen, or more concentrated air, a great saving could be effected, and we could do in combustion furnaces much which is now only possible in the electric furnace.

"One of the processes which the bureau has felt had much promise in this direction had not, up to this time, received any large scale development, but now these facts were all called to the attention of our army and navy, who immediately jointly appropriated first $100,000 and afterwards further sums now aggregating over $1,000,000, for trying out the project not only along the line of the new process but also parallel therewith by the older and better known processes as well, and entrusted the general direction of this work to the bureau of mines.

"The plants on the older processes are already producing helium in large quantities and the one on the new and what is hoped may prove several times more economical is just about to have its practical production test. If it fulfills anticipations, its significance is far wider than the production of helium for it will open the possibility of oxygen in quantities at costs undreamed of by most chemists.

Early Iron Ore Production in Virginia

BY MARSHALL HANEY

Consulting Mining Engineer, Geer, Greene County, Va.

THE first records show that iron ore was mined in Virginia in 1609 by the Jamestown colonists. The ore was shipped to England and made into 16 tons of iron. This led to the building of the first American ironworks in 1621 on a small creek near the site of Richmond. A furnace was built in Spottsylvania county in 1727, and another about the same time on the land of Augustine Washington, father of George Washington, in Stafford county. In 1781 there were five or six furnaces in operation in the state, using oriskany and magnetite ores.

The first furnaces were in hailing distance of water transportation and the James river was the principal highway. The industry had been established west of the Blue Ridge by the close of the eighteenth century, and by the middle of the nineteenth century the Oriskany district had come to be an important center of iron manufacture, a position it still maintains. The building of railways greatly changed conditions and the great boom in the iron business in the state in the eighties resulted in the building of many furnaces.

The following ores are mined in Virginia: Magnetite and magnetic iron ore, containing 72 per cent of iron; hematite, specular iron ore, red hematite, fossil and clinton ore, containing 70 per cent of iron; limonite, brown hematite, bog iron ore, ocher and brown ore, containing 59 per cent of iron; siderite, spathic ore, blackband, clay iron stone and kidney ore, containing 48 per cent of iron.

The controlling impurity which determines the use the iron made from the ore can be put is phosphorus, and in very small quantities it produces marked effects on both iron and steel. This impurity cannot be eliminated in the blast furnace or the acid converter used in the making of bessemer steel, and the permissible limit in pig iron used for this purpose is .01 per cent. The amount of the impurity in many high grade ores falls below this limit. Sulphur is objectionable because it makes the iron brittle when hot. Manganese is not objectionable if not in excess of 1 per cent. The ores high in manganese are used for basic iron. Titanium chiefly occurs in magnetites, and is objectionable because it interferes with the furnace.

Iron ore originates from the segregation of iron leached from rocks, lean in the element. The iron is carried in solution by circulating water and finally precipitated. This may be done in a body of standing water. Deposits beneath the surface may be cavities or replacements in the rock, and in both cases lime is likely to be an associate.

Iron ore is found in the northwestern half of Virginia, unevenly distributed, being found in the Allegheny mountains, the valley, the Blue Ridge and a part of the Piedmont plateau, and is divided geopraphically into various areas as follows:

Piedmont magnetite area, a small strip about 150 miles long, extending from the North Carolina line toward the James river, running parallel to the Blue Ridge and from 15 to 30 miles from the ridge.

The pyrite area, about 100 miles long, lying about 40 miles southeast of the Blue Ridge and extending from the Potomac to the James river.

The great gossan area, a narrow belt about 60 miles long, lying in Floyd-Carroll-Grayson counties.

The Blue Ridge area, a strip 150 miles long extending from Front Royal to Roanoke. In the counties of Wise and Lee is the fossil ore area which is about 40 miles long and takes in Poor valley. The New river-Cripple creek area is about 30 miles long and three miles wide, and is chiefly in the counties of Wythe and Pulaski.

The Great North Mountain area lies principally in Shenandoah county. The Oriskany area is about 40 miles long and 10 miles wide, and is the largest producer of iron ore in the state. The town of Clifton Forge is in about the center of the area. The second area of importance is the New river-Cripple creek area.

The iron ores having the greatest commercial value at present are usually those which are favorably located, of high quality, and possessing a structure to render their extraction easy. The Virginia deposits have these factors in their favor.

French Labor Issue in Peace Parley

Radicals Seek International Agreements Respecting Labor Conditions—Plans for Industrial Renaissance Far-Reaching—Reports of Huge Iron Deposits in Spitzbergen Arouse Europe

BY FRANCIS MILTOUN
Paris Correspondent of The Iron Trade Review

ON the eve of the peace conference there is considerable interest in a new program to bring about an industrial renaissance in France, now the richest of all European countries in iron ore.

A new political movement is being fathered by Monsieur Justin Godart, deputy from Lyons and former under secretary of state, who was recently in the United States to visit hospitals of the American army. He evidently kept his eyes open on many other things, as bespoke the talents of a "congressman" from Lyons, the second city of France, and, perhaps, the greatest single industrial center of the country.

Program of Labor

His argument is for adopting an international agreement at the present peace congress as to conditions of labor. He may have assumed that the labor delegates, or the representatives of organized labor, who form a distinct political party in France would have a seat at the peace table. This is hardly likely. There is lively opposition to the idea in many quarters. If labor delegates should sit in, why not employers' delegates? Be this as it may, that the proposition is of importance in the future of all nations is shown by the fact that the American delegates to the international labor congress, headed by Samuel Gompers, will be sitting in Paris at the same time that the peace negotiations are going on.

The program of the labor party in France is not far different from what is recognized as the platform of organized labor in the United States. Whether this can actually be internationalized or even nationalized, is quite another matter. The program in brief follows:

The fixing of 14 years as the minimum age at which child labor may be employed. Limiting the hours for labor of adults to eight hours. Weekly labor to be limited to five and one-half 8-hour days, omitting Sundays and Saturday half holiday, the latter being what the French call the *semaine anglaise*. Sickness, accident and old-age pensions to be regulated by law. The establishment of absolute equality of conditions for imported labor and that of the country itself. The latter clause is intended to admit of no advantage to employers who would import oriental labor.

Practically this whole proposition is in accord with that part of the French socialist platform which applies to the wage earner. It is hardly likely that the plan will be adopted as at first outlined, but it is worth taking into consideration as being a sample of the kind of timber on which socialistic platforms are built up in Europe. From the mutterings of the socialists in France they evidently are disposed to be arrogant if the new order of things does not provide for the amelioration of what they, rightly or wrongly, consider unjust laws.

The argument of Monsieur Edouard Herriot, senator and mayor of Lyons, is considered more logical. He does not offer any particular solution of what approaches to a labor crisis in France, but he does suggest the stimulation of industry as the salvation of the country. He is one of the really great planners of the future of France along essentially practical lines. He states: "It is an undisputed fact that modern nations are one and all evoluting towards an industrial preeminence that was not dreamed of by a former generation."

This means that old Europe; not necessarily England, which has ever been thought of as a nation of shopkeepers; not Germany, which by unholy methods was undermining the very *noblesse* of industrial effort; not Italy, a nation of toilers and mandolin players; not Switzerland, a nation of hotelkeepers; but that France, the old France of aristocratic and luxurious tendencies and tastes, is to adopt new methods or founder. Even the French peasant in the fields has a contempt for mechanical aids to his labor. In offices and shops the same methods were often in practice just before the war that were in vogue in the days of Louis-Philippe. One sees evidence of this everywhere today, a short-handled hoe for the toiler in the fields, a bucksaw in the hands of the carpenter, a whippet drill in the hands of the mechanic when he should be using some sort of an electric tool. Seldom do you see efficient lighting in the workshop, electric fans in a restaurant or a selfstarter on an automobile. Mining methods are crude and clumsy and production accordingly low. Wages, too, are low, but not in comparison with the tonnage of coal or iron brought to the surface. But all is now to be ordered on a new scale. The problem is to educate the public, the working public.

France has ever been a land of little things, many of them good things—the 75's to mow down the invader, for instance, Renault limousines, hats and gowns and silks and laces, fine wines, soaps and perfumes; coffee mills and pepper grinders, if you like. But if one wants a typewriter, a runabout, a carpet sweeper, a vacuum cleaner or a machine tool or an adding machine he must go to America for it. Not many of these are found in France, save, perhaps, machine tools, agricultural machinery and a few runabouts.

Low Production, High Finish

Production in France was on a small scale, with much high finish. Very little was standardized, and there was little attempt to develop a really good industrial proposition into something much bigger, which it would have done on its own initiative had it been given a free rein and a little really pulling advertising. When a manufacturer sought to enlarge his plant, lay it out on new lines and equip it with labor-saving machinery, he was looked on with askance by those whose interests he was best serving. Labor saw its occupation going.

In America it is recognized that industry is a partnership of labor and capital. M. Herriot, and some others, see it that way in France. Monsieur Loucher, the former minister of armament and now minister of industrial reconstruction, has said: "The automobile has proven itself a new arm of warware; tomorrow it will become a tool of trade and an aid to civilization. As we have forged for war so must we now forge for peace."

Here is one of the big industries of France, one of the greatest of all modern industries in its consumption of iron and steel. Today it, too, is in process of reorganization. Most of the big and little plants have been

working only for government account, producing not only staff cars and trucks, but tanks and arms and ammunition. All these are soon to be transformed back into automobile production, and on a larger scale than ever before, although France when hostilities broke had something less of an automobile registration than that of the state of New York.

Bearing in mind the limited number who are or may become potential purchasers, it is unlikely that any French manufacturer can ever hope to equal American production in the automobile line, even with the application of American methods. It is all a question of absorption, and the saturation limit is not high. Possibly 100,000 automobiles can be sold in France during the next five years; possibly 250,000, but I doubt it. Where, then, is the encouragement for quantity production? What is far more likely is that some French manufacturer will put himself in association with American parts makers and assemble here. It would seem to be by far the most logical way of catering to the popular market. That motor trucks, smaller vehicles for delivery use and small and larger tractors for agricultural use will give an employment which was not counted on before the war there is no doubt, but after all the industry itself has got to take into consideration foreign competition.

To counteract this the foreign automobile coming into France pays a duty of 70 per cent ad valorem at the present time, and what with high freights, insurance and attendant costs, this forms considerable protection for an infant industry. One writes of this "infant industry" with a full knowledge of the fact that France was the cradle of the automobile, for barring some of the higher-priced cars, the market is still for America, even at the high duty, in case the American manufacturer does not want to associate himself with some French assembler.

* * *

France's great competitor is still her herditary enemy, Germany. Whatever may be the peace terms, Germany has still to be reckoned with in an industrial war. Nothing short of deliberately barring her out from trading with the allies can possibly curtail her production along many popular lines, above all in the metal trades. Before the war Prussia alone had made a more rapid industrial stride than any nation of Europe. The steam horsepower of the country had more than quadrupled from 1882 to 1907, from 1,220,000 to 5,190,000. Admitting that the *cheval vapeur,* as the French call horsepower, is the equal of the force of 10 men there is, then, the productive capacities of 50,000,000 men in Prussia alone, an increase in the country's working force of 28,000,000 in a quarter of a century.

"Germany," says M. Herriot, "is no more dangerous for France because of her militarism than because of her mechanism."

The French nation will of necessity, and by government aid, be compelled to reform its industrial system or descend forever to the rank of once-proud Spain, the only one of the great nations of the world where industry is no longer national, but local, that is not nation-wide in its distribution. The admirable French system of decentralization, more apparent today than ever, is one of the great processes which will revivify France in all things. The program is not a new one for France, but it is new that the government shall take an active part therein, a paternalism that is distinctly French, without being in the least socialistic.

Local customs can never be flattened out to a dead level in France, but there is no reason why market prices for labor and its products might not be generalized and standardized. The methods of employer and employe are not so far different after all. It is only a question of finding that middle ground on which each may stand in order to produce results which will be profitable to both elements. It is this that the socialists of France are seeking; the *bourgeoisie,* on its part, does not oppose it, although it appears to be indifferent. Indeed, class for class, all France is opposed to the processes of the other. This is the result of routine, not tradition. Employer and employe must get together.

For the *siderurgie* or metal industry of France it is to be remarked that from 1903 to 1913 there has been a notable increase of activities and results. During this period pig iron production increased 87 per cent, steel billet production increased 152 per cent and steel plate production increased 130 per cent. These are the figures of the well known *maitre des forges,* Cavallier, whose reliability no one questions. But even Belgium before the war had a better record than this.

* * *

Reports of the discovery of great deposits of iron and coal in Spitzbergen have stirred the imagination of Europe. At Recherche bay there is said to be a mountain several miles long and 1500 feet high which is practically a mass of iron ore. Assays, according to British experts, have shown it to contain 65 per cent or more of iron in the metallic form.

Swedish authorities doubt the accuracy of statements based on British prospecting, and have claimed that the deposits cannot equal, either in quality or quantity, those of their own country. The Norwegian mining journal *Bergversnyt* states that "the iron ore deposits of Spitzbergen have been examined by British and Norwegian experts and are declared as being beyond comparison the largest and richest deposits in Europe."

In a report of the German Iron and Steel institute, General von Gayl states: "Iron and coal are the pillars with which we have sustained our pre-eminence." The British, recognizing this fact, have gone at the very foundation of the Spitzbergen proposition and consider that their own future lies in the British development of the deposits.

Recherche bay is 1300 miles from the Middlesborough steel works on the east coast of England, scarcely a greater distance than the mines of Spain, by ore steamers, less than a week's voyage. From Lowe sound, where are the nearest coal fields, is little more than 400 miles to Tromso in Norway where a ready market can be found for coal at a price ranging the last two years from $60 to $70 a ton.

Despite the Swedish government's opposition, Swedish interests have actually developed a Spitzbergen enterprise at Braganza bay, contiguous to the British ore deposits, which already has produced a rich return through exporting and mining Spitzbergen coal. The Arctic Coal Co., a Norwegian concern, is also working along parallel lines. According to British viewpoint Spitzbergen will either prove a strong arm for or against the British iron industry, according as to who may ultimately control the deposits.

* * *

The great industrial enterprises in France were unable to shut off steam and close down at once when the armistice was signed. A month after the end of hostilities, Renault was turning out 155-millimeter cannon. Whippet tanks to the number of 2800 were ready to leave the factory. Approximately $28,000,000 was tied up here in rolling armament, which might never fire a shot.

Sheffield's Output Grows

Birmingham, Eng., Feb. 12.—The growth of steelmaking capacity in Great Britain, which has been such a remarkable development of the war, has largely centered in Sheffield. Last year from

120,000 to 130,000 workers in the city were employed on munitions, and of those nearly 40,000 entered the shops during the war. Wages were so high that by working 84 hours a week, including overtime, an unskilled laborer could earn £6 10s ($31.20) a week. The signing of the armistice brought about a return to normal working time, and a reduction of 30 to 50 per cent in wages throughout the district.

An authoritative estimate puts the output of Sheffield for 1918 at more than double that of 1913, while from June, 1917, to June, 1918, the rail traffic in and out of the city was 35,000,000 tons. During the war, large plants sprang up on every hand while more than 1000 important extensions were made. About 100 large new steel furnaces were lighted and 34 large electro-steel furnaces were erected. The city spent £2,000,000 ($9,600,000) in developing its electric supply stations.

Abundant orders have been booked in practically all lines, or are on offer, and there is a prospect of a prosperous future, with abundant work for many years. The authorities made preparations to pay out £20,000 ($96,000) a week in unemployment donations under the government plan, but gloomy expectations have not been realized. Although thousands of men and women have left munition work, they evidently have been absorbed in other industries.

Effect of Forging on Steel Density

IN a paper prepared for the February meeting of the American Institute of Mining Engineers, H. E. Doerr, chief mechanical engineer, Scullin Steel Co., St. Louis, states that among men engaged in the forging business, the opinion prevails that forging greatly compresses or consolidates steel. In order to determine the correctness of this assumption, Mr. Doerr made a number of experiments which indicate that there can be little or no change in the density with steel initially free from cavities.

Ten ingots of basic open-hearth steel cast as shown in Fig. 1, were used in the experiments. All the specimens were 0.53 per cent carbon with all other elements the same, the analysis being determined from drillings taken midway between the center and outside of the upper end, as shown in Fig. 2. The specimens were selected from over 1000 ingots so that the tests could be comparative for the work done in forging.

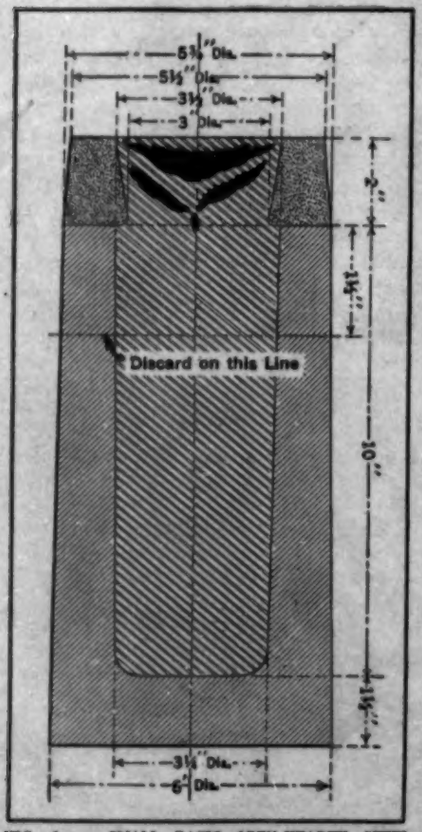


FIG. 1 — SMALL BASIC OPEN-HEARTH STEEL INGOT CAST TO FOR STOCK FOR TEST BARS

Tests Are Representative

No two of the testing ingots were cast in the same heat. Each ingot remained in the mold approximately 30 minutes, when it was removed and air-cooled. About 12 hours later, when the temperature had been reduced to that of the surrounding atmosphere, the head was cropped off and the ingot heated in an oil furnace to approximately 2250 degrees Fahr. Approximately one minute was required to forge under the steam hammer to 1¼ inch, rough diameter, as shown by the dotted lines in Fig. 2. All the ingots were allowed to air-cool after forging. Cylinders ½ inch in diameter and ½ inch high were then turned from the forged and unforged parts of the ingots and numbered. The ten pairs of specimens were submitted to Louis E. Endsley, professor of railway mechanical engineering, University of Pittsburgh; A. N. Talbot, professor of applied mechanics, University of Illinois; L. Z. Slater, chief chemist, Scullin Steel Co., St. Louis, Mo. No information was furnished as to which specimens were forged or unforged and each laboratory used the same specimens, submitting the average of three independent determinations. While there is considerable difference in the individual determinations for a number of the specimens, the averages for both the forged and unforged speciments are close. Assuming that all cavities, however small, were completely closed, the average results indicate that only 0.64 per cent of the sectional area of the original ingot consisted of cavities.

The ratio of volume to superficial area is so great with an ingot of the size used that it is doubtful whether the ingot can solidify properly without the formation of microscopic cavities. Undoubtedly, with large ingots where the ratio of volume to superficial area is smaller than with the ingots used, the percentage of increase in specific density of the forged specimens would be reduced to a negligible value if not wholly eliminated.

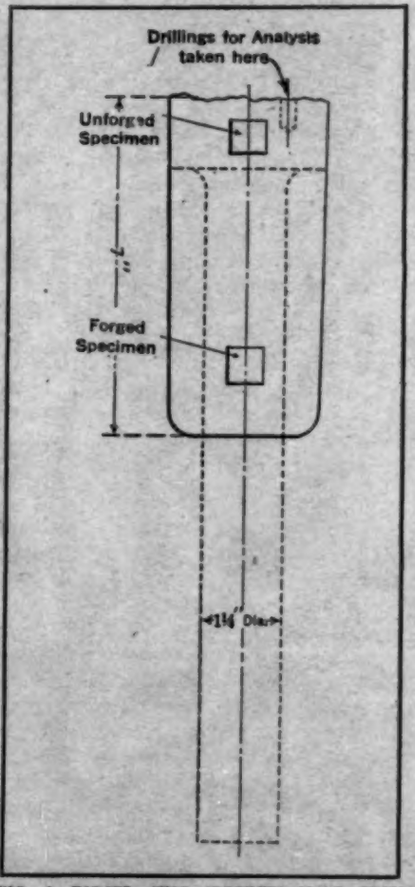


FIG. 2—FORGED TEST SPECIMEN MADE FROM INGOT SHOWN IN FIG. 1

Americans Build Foreign Plants

Steel Magnates and Banking Authorities Advocate Investments in Foreign Industries —Many Exceptional Opportunities Are Offered to United States Capital— Commitments Already Have Been Made for Some Projects

BY V. G. IDEN

EVER since its organization the United States Steel Corp. has operated a strong export branch. The independent producers have organized for foreign trade under the Webb act. The automobile manufacturers of the United States as well as other producers of commodities made from iron and steel are discussing the creation of export branches under a combined head. The coal producers, it has been learned, are also hoping to take advantage of the Webb law and pool their products for the foreign markets.

Opportunities are plentiful. The markets of the world are not only awaiting development but are inviting American goods. While the Webb act undoubtedly affords a great opportunity for small producers in the same industry, even their combined efforts to keep their markets will prove unavailing unless proper financing is done. It is not only a question of financing the export organization, or of finding banking facilities to speed the goods on their way, but it is also a serious question of financing the purchasers of these same goods. The American public must turn its attention to investments in foreign fields.

America has been provincial. Her industries have been provincial because they depended upon European and other foreign capital to promote them. The war has taught the need of financing and the foreign trade of this country will never assume the importance it deserves unless profit is taken from that lesson. Now and then we are told of American structural steel sold in India, or of the railroad equipment sold in South America, but it would probably be shown upon investigation that these articles were sold by Americans because the purchasers could not obtain them elsewhere. Trade follows investments and foreign investments are things in which Americans have not been particularly interested heretofore.

A change in this regard already is apparent. It has been learned that the engineering firm of Stone & Webster has been awarded a large construction contract in France. Other important commercial endeavors are being started in other parts of the world. These works will call for American products and thereby swell the volume of American trade. But it must not be forgotten that these works cannot be undertaken unless the capital is provided. Amer-

WALL STREET, THE FINANCIAL CENTER OF AMERICA, WHICH IS ENLISTING IN THE RECONSTRUCTION OF EUROPE AND PREPARING TO PLACE INVESTMENTS IN ALL PARTS OF THE WORLD

icans are most likely to participate in the profits from such enterprises when they not only provide the engineers but also the capital for the undertaking. In the case of France especially this is true. France has borrowed heavily for the war. She will be compelled to sell much to pay of that debt. The greatest service Americans can do today is to assist the French industries to get on their feet and produce in the required volume, and that assistance can best be rendered by investing money in the building of new French factories.

At Atlantic City early in December when approximately 5000 business men came together to discuss reconstruction problems, the question of foreign investments were urged by most of the leaders. Since then American business men have taken the problem home with them to think over and financiers are awaking to its importance. It will not be long, if dependence can be placed in American ability to do and to serve, before practical plans are on foot to put the lesson to use.

"The proposition that American manufacturers should establish branch factories in Europe I regard as a *sine qua non*," declared A. L. Johnson, vice president and general manager of the Corrugated Bar Co., Buffalo. "These plants should be incorporated under some name consistent with the country in which they exist, with native capital interested with the American manufacturer up to 50 per cent. By means of these plants the manufacturing would assist these countries in paying their debt to us, and with native capital interested in them, foreign government consent to the establishment of plants could be obtained although at the present time this would not be practicable in France, the law now requiring a majority of the board of directors to be French. In the final settlement of peace terms, however, agreements between this country and France probably could be reached on this point.

"In the past we know that America has not been properly equipped to do business abroad in that no proper arrangements were made for the extension of credits, there being no American banking facilities. No study was made of the foreigner's needs. He had to take what we made as we made it, go without it or buy it elsewhere, which he was glad to do. We know the mistakes we have made in the past."

American Financiers in Europe

At the moment some fear is expressed in regard to European investments owing to the changed relation of government to industry. Some financial authorities anticipate that the French government will itself invest in French industries, and by sharing in the profits of the industries obtain a revenue to meet, in part at least, the great war debt which has been piled up. Notwithstanding this, many American financiers are today in Europe studying conditions. A large number of them went over only after the signing of the armistice with Germany. Their visits display the great interest in which investors are viewing the European situation.

This question of making investments in foreign enterprises is a most serious one. Germany adopted the policy prior to the war, but the German economists declared that they found it a mistake because the very industries they financed in foreign countries developed those countries and made them independent of Germany. If it proved a wrong policy for autocratic Germany, then it must contain some of the elements of democratic service which is to be the new rule of the world in the future.

There is some doubt, however, about the German attitude toward foreign investments because it has been reported that individual Germans have profited by Russia's distress and purchased some of the most valuable Russian property. These transactions may have been inspired by individual greed on the part of Germans who were seeking to extend their private fortunes by purchasing bargains. Undoubtedly it was not inspired by any sense of duty to Russia.

Speaking of the effect of the bolshevik revolution, A. A. Boublikoff, one-time member of the Russian duma, said:

"The newly-born multi-millionaires were confronted by complete ruin. Some of them are patiently waiting, either in Russia or abroad, for the natural end of bolshevism. Others apparently are inclined, at the price of any sacrifice, to save at least some remnants of their former wealth. Many of these later captains of Russia's industry are either in Stockholm or have their representatives there, and, if they have not already started negotiations for the sale of their stock they manifest a desire to do so. There is a ready purchaser for it in Berlin.

"To think that the German stock exchange and banking kings doubt for a minute the liquidation of the bolshevik inventions in the economic field, immediately upon the termination of the war, and the restoration of the right to private property in Russia, particularly of German property, would mean to suspect these people of a lack of elementary foresight, of which they were never guilty before. If they are not already buying Russian stocks at this moment, it is only due to the fact that they expect to buy still cheaper."

The Russian situation alone forces upon the peace conference the necessity of establishing some international rules regarding investment rights. There is undoubtedly a great service that can be rendered any undeveloped country by permitting foreigners to invest in new industries, but it is equally important that such investments shall be made for mutual benefit and not for the exclusive gain of the holder of the money-bag. German ideals in business must be abandoned completely, and sounder principles of democracy used as a guidance in making new international laws.

Need to Regulate Investments

Secretary of Commerce Redfield is more mindful of the manner of doing business abroad than with the details. What will be the attitude of the Wilson administration toward foreign investments as a method of promoting commerce is still a question. American financiers have not forgotten the pronouncements of William J. Bryan when he was secretary of state, but the war has brought forth many changes. In 1913 the government at Washington may not have been willing to protect the foreign investments of American citizens. It was a question of whether the present administration had a desire to protect such investments in Mexico during the recent revolution there. Since then, however, the United States has been at war with Germany, and the United States has extended enormous credit loans to her allies. The policy adopted when these credit loans were started is one which promises to bring out, quite logically, a different point of view in regard to foreign investments made by individual Americans.

If these investments are made with a proper object in view it is believed that the federal government will give to them the protection due them. Investments made with "hunish" intents will be without the pale of official recognition.

"There is no doubt, humanly speaking," declared Secretary Redfield recently in an address to several thousand business men, "that prosperity lies ahead for America, but there is yet an unsolved doubt as to what use America will make of her prosperity. Do we think of our sister nations as 20 years ago a trust magnate thought of the concerns whose business he would like to grasp? We have outgrown that in our domestic commerce. I do not speak of it as being illegal. When we get beyond the three-mile limit are we going to be as far advanced in our thought as we are at home? Can we carry the spirit of American law where the law of America does not prevail? If we do not, we may become fat and rich and possibly win the contempt of the world in so doing. Will our thought be to aid, with the spirit of service running through all, serving those who have served us first? How will the world feel toward America 20 years hence? It all depends. If you can leave to your sons as they go about the earth the knowledge that America rose to a height of marvelous power, financial, military, political, industrial and economical, and she used that power to her own good always and also always for the good

GERMANS IN THEIR RETREAT RESPECTED NOT THE LIVELIHOOD OF THEIR ERSTWHILE ENEMIES. AMERICAN MONEY IS PREPARING TO REBUILD THE INDUSTRIES THE GERMANS DESTROYED

of the world, then your sons can walk as no German can walk, can travel the whole round orb of the globe, among friends knit to one another with bonds of esteem and affection which can not be broken."

If Secretary Redfield had any intention of warning business people in regard to their conduct in foreign markets, he met with a ready response from Charles M. Schwab, who addressed the same audience.

"The men in business in the United States," said Mr. Schwab, "are not the men who are working for money alone. The chief pride of American character is successful accomplishment. It may be measured by the dollars that go into his coffer, but the real throb and thrill of pleasure that comes to his mind is one of successful accomplishment."

Bethlehem stands as a monument to Mr. Schwab and bears out his words. But Bethlehem has foreign investments and foreign interests. Through its various shipbuilding yards it is striving to interest other American business concerns in foreign markets and foreign investments.

A number of American banks have already gone into the foreign field and these will offer their services toward the promotion of investments. The National City Bank of New York established foreign branches throughout South America prior to the war. Some few other American banks likewise established foreign branches. Many banks, without foreign branches, are preparing to give their customers a service on foreign opportunities.

The First National Bank of Chicago has opened a foreign trade department in connection with its foreign exchange department. This gives to business men in the Chicago district a service which they have heretofore been compelled to seek in eastern financial centers. The service offered by the Chicago bank will be largely informative.

While this is merely a beginning, it illustrates the awakening sense of the business community not only to its opportunities but also to its duty. Willingness to make loans and to place investments is a great incentive to friendship and to business based upon friendship. American banks may not be capable of making investments in foreign industries, and the individual American citizen cannot be expected to have sufficient knowledge to warrant him purchasing foreign securities. It therefore evolves upon American business men to be the leaders in this. Those who are interested in foreign markets will be expected to know the most regarding the customs and the stability of those markets and therefore be acquainted with such properties as afford an opportunity for safe investments in those markets concerned.

Recommends Investment Trusts

Paul M. Warburg, ex-member of the federal reserve board, has recommended the creation of "investment trusts." These organizations, he proposed, patterned after similar financial bodies of England and Scotland, would make investments in foreign industries and market securities in America to provide for the funds.

"If we want these countries to continue to be able to buy our goods," said Mr. Warburg, "it is incumbent upon us to prepare ourselves to grant these foreign countries credits and to buy and assimilate these foreign assets."

At the moment the business world has its attention directed most particularly to Europe because, in the restoration of the devastation there the United States has an opportunity to do a great service. The government at Washington most likely will continue to exercise some form of export restriction or at least priority of exports that these regions may have the first consideration in commerce. For a year or probably two years the export business of America will be dominated by the needs of Europe.

"The world balance sheet has been watered," declared Mr. Warburg, "by issuing war loans and currency against things already consumed or of no permanent value, to an aggregate appraised to exceed the estimated prewar wealth of England and Germany combined. The squeezing out of this water by gradual amortization of war loans and contraction of note issues will prove an important factor in reestablishing the prewar levels of prices.

"I do not believe that the world has turned far enough into a family of communists seriously to consider the pooling by all countries of their holdings of gold. As long as nations have separate national budgets and obligations, they are likely to wish to retain a distinct ownership of their assets. The problems of reconstruction are immense and immediate; the new structure must be erected on the

TYPICAL DEVASTATION LEFT BY THE GERMANS. A BANKRUPT DEBTOR IS A POOR CREDIT RISK. AMERICAN INVESTMENTS IN EUROPE WILL PREVENT THOSE PEOPLE GOING BANKRUPT

most solid foundation and built with material that is thoroughly tested and promptly and actually available.

"In thinking of financial reconstruction and of the financial world of the future, do not too many amongst us have this one thought uppermost in their minds: Is the United States hereafter going to be the leading financial country? In other words, are we going to take England's place as the foremost financial power? Do not these men forget that if England were to surrender her entire trade and banking to us we should collapse, and that if we were to unload all our business on her she would break down under the burden? The whole truth of the matter is that we have both grown to be pillars supporting the same structure and that neither can fall or become weakened without bringing danger or disaster on the other. England, herself the owner of billions of foreign obligations, will remain the banking center of Europe; a world clearing house for goods and credits. I believe that her banks and ours will be found in close co-operation sharing the burdens in bond issues and credits, and relieving each other as the tide may swing from time to time."

Leaders in America are inclined to agree with Mr. Warburg. The enormity of the task of restoring foreign industries is such as will require the combined assistance of all the money powers of the world. Working under the peace terms as it is hoped will be evolved, American investors can coordinate their efforts with those of investors of other countries. Not only have American business men learned the benefits of co-operative efforts between erstwhile competitors but great nations of the world have learned the same lesson from the war. The principle applied to the making of investments abroad will do much to remove the objections of the democratic party to what they were pleased to call "dollar diplomacy."

The principle of foreign investments has the endorsement of the National Foreign Trade Council and in the light of the developments which the end of the war makes possible has authored some propaganda on this subject. James A. Farrell, well known to the iron and steel trade, speaking on behalf of the foreign trade council said:

Strength of finance will count for even more than it has ever done before in the development of external commerce. An eminent banking authority sums up the matter by saying that in the coming expansion of world-wide enterprise the nation that can not only give its own trade on both the import and export side the benefit of complete financial organization and stability but can extend to other nations the benefit of capital and commercial credits will be at a great advantage over any nation that happens to have its hands full in maintaining its own equilibrium, or which cannot spare capital and credit.

More than this, there can be no great revival of trade in the countries where we hope for it most, unless we are ready to provide capital for their development. We must enter into the industrial life of those countries, engage in enterprises with them and create out of their resources the new wealth from which will come our pay. Habits of investment are acquired by experience, and conditions in this country have favored investments in local enterprises. We have just begun to acquire experience with investments outside of the country and the development among us of a body of cosmopolitan investors such as has long existed in England must vitally affect the future of our foreign trade. It means, however, an enormous stride in commercial and industrial capacity that we should have passed out of the ranks of the debtor nations and become ourselves large creditors of all the allied countries. Then, too, a very important contribution has been made to the financial education of our people in the new familiarity which the bond subscriptions have given them with investment in securities. It is sufficiently plain that our commercial banks cannot properly tie up the deposits of their customers in stocks and bonds of foreign corporations, no matter how good they may be, and that any such form of investment is beyond the power of the savings banks. We must therefore look to private investors to assume the broad and deep foundation on which must be reared the American foreign commerce of the near future.

The United States shipped several million soldiers to France. Many

thousands of influential Americans are today better acquainted with the European countries than ever before. They are better acquainted with the industrial needs of these countries, are alive to the investment opportunities there. The groundwork is prepared. The lesson will be brought back by the returning soldiers and those who have good foreign securities to offer may approach the American market with a much better chance of success than prior to the war.

Investing in South American Securities

The effect of this awakening intelligence in foreign investments has already been recognized in the case of South America where, prior to the war, American interests, other than in mines and the packing industry, were negligible. An Argentine loan was sold successfully in the United States in 1915 through the aid of an American banking house. Frederick M. Halsey, special agent for the department of commerce, has just completed a survey of South American investments, and he reports:

Two short-term note issues of South American railways were floated in the United States, these being obligations of the Antofagasta (Chile) & Bolivia railway, $3,000,000, and the Central Argentine railway, $15,000,000. Other investments, largely mining securities, were made, including bond issues of the Cerro de Pasco mines, the Chile Copper Co., and the Braden Copper Co., operating in Peru (Cerro de Pasco Mining Co.) and in Chile. These three great mining properties, developed through the investment of American capital, have become the greatest mining properties in South America and rank among the most important copper producers in the world. American interests have also turned their attention to developing the petroleum resources of Venezuela, Colombia, and Peru, as well as the nitrate fields of Chile, the manganese deposits of Brazil, and other forms of enterprise.

Mr. Halsey estimates that probably $100,000,000 of American capital has been invested in Argentina. Most of this is in meat packing plants, although Americans have purchased Argentine government bonds and securities in banks, public industrial enterprises, railways, and other undertakings. The American investments in Brazil were estimated to total $50,000,000, representing public utilities, cattle raising, meat packing, mining and other industries. In Chile Americans have invested probably $225,000,000. This money has been put into the Chile Copper Co., the Braden Copper Co., and other enterprises. The Bethlehem Steel Corp. owns immense iron ore deposits and the Du Ponts a valuable nitrate tract.

Colombia offers great undeveloped opportunities. Her platinum stores are believed to be enormous. When the American senate ratifies the Colombian treaty probably the way will be paved to encourage investments there. United States investors control the Cerro de Pasco mines, the International Petroleum Co., and a few minor industries in Peru, the total representing some $50,000,000. The interests of the General Asphalt Co. are large, the Caribbean Petroleum Co. and other American interests are important factors in the oil development of Venezuela, and there are sugar enterprises financed in the United States. Approximately $20,000,000 of American capital has been invested in Costa Rica, the largest interest being the United Fruit Co. An American company is proposing an important port development in Honduras. Although Jamaica is a British colony most of its foreign capital has come from the United States and Canada.

This list is by no means complete. American investments are now growing around the globe. Money put into industries in Hawaii and the Philippines returns not only its interest but mutually profitable trade. American interests are reported to be expanding in China and Siberia. Several American surveying parties were in the Chungking district, China, during 1917. Little actual progress in railway development, however, will be made, on account of capital, until the effects of the war have passed. United States Consul Hanson says that there is no finer field for American finance and engineering skill than in Szechwan, and the bringing of the vast potential resources of this district to the coast of China for distribution to foreign countries will be a profitable achievement.

Survey French Steel Industry

Opportunities have been awaiting in the undeveloped fields, but never before has American capital been given the opportunity to invest in European undertakings as it will be offered now. The Stone & Webster contract in France is not the sole important event. Americans are now interested in the building of a modern blast furnace in Italy. Naturally Belgium, French and Italian industries will welcome all the American capital that shows a willingness to invest. The United States is supplying France today with rough forgings, heavy castings, billets, structural shapes, and plates. American engineers, according to common report, are surveying the French steel industry with the object in view of laying it out upon the American plan of production. To carry this work through not only will American engineers be used but American capital may naturally be expected to be invested.

European industries rebuilt under such circumstances will be industries friendly to American interests. The old spirit of rivalry will be lacking and in its place will be inaugurated a spirit of co-operation. The United States has extended credit loans to her allies to a total approaching $8,000,000,000. Undoubtedly more will be loaned them. It has been estimated that $500,000,000 will be due the United States from interest alone on the American loans abroad. This sum cannot be paid in gold. There is only $400,000,000 of new gold taken from the mines of the world outside the United States every year. A payment of this interest in cash would gradually drain Europe of her gold reserves. Such a settlement would not only be impossible but very uneconomical. It is necessary that America capitalize her balances. This can only be done by making investments abroad, thereby striking off the balance in settlement.

Manufacturing Conditions in Sweden

When industry was temporarily paralyzed at the beginning of the war, the Swedish iron trade was at first thrown out of gear owing to the stoppage of exports and the almost total cessation of imports of material. However, the iron industry has suffered less from the war than Swedish export concerns. It has in certain cases been extremely difficult to keep makers of iron supplied with the requisite quantities of ore and limestone. Traffic to Russia at the beginning of the war absorbed a considerable proportion of the rolling stock of the Swedish railroads and in the winter of 1915 several blast furnaces were on the point of shutting down owing to the shortage of materials.

As regards the supply of ferromanganese, Sweden fell into great difficulties at the beginning of the war. British ferromanganese, as used together with ferrosilicon, has been replaced to a very great extent by Swedish ferrosilicomanganese. Even if ferromanganese can be manufactured to a considerable extent within the country, it is scarcely possible to dispense with British ferromanganese with its low percentage of silicon, as the Swedish ferromanganese, which is made in electric furnaces, cannot without great difficulty be reduced to the low percentage (less than 2 per

cent of silicon) necessary for certain requirements.

The alloy metals nickel and chrome have hitherto been procurable, though the former, with continuously increasing difficulty. But the supply of chrome also is bound to become scanty, if the war continues for some time, there being, as far as is known, no deposits of that metal in Sweden. The manufacture of high-speed steel fell, soon after the beginning of the war, into a difficult position, in consequence of the stoppage of the supply of tungsten. As a substitute for the latter in this important branch of steel manufacture, molybdenum has been used, though it is not on a par with tungsten in quality. The manufacture of molybdenum appears to have been started in Sweden recently.—*Swedish Export.*

Iron Ore Production for 1918 Decreased

STATISTICS and estimates of the production of iron ore in 1918, compiled by the United States geological survey, show a decrease in output compared with the records of 1916 and 1917. The estimated quantity of iron ore mined in the United States in 1918 was 69,712,000 tons, compared with 75,288,851 tons in 1917, a decrease of 7.4 per cent. The estimated shipments from the mines were 72,192,000 tons, valued at $246,043,000, compared with 75,573,207 tons, valued at $238,260,444 in 1917. This is a decrease in quantity of 4.5 per cent but an increase in value of 3.3 per cent. The average selling value of the ore per ton at the mines was $3.41, compared with $3.15 in 1917. The stocks of iron ore at the mines apparently decreased from 10,628,908 gross tons in 1917 to 8,139,000 tons in 1918, or 23.4 per cent.

The decrease in output is attributed to industrial conditions, the supply of labor and transportation facilities. But despite these handicaps the shipments from the Lake Superior district from April to October, 1918, were over 2,500,000 tons more than those for the corresponding period of 1917. Owing to a scaling down of furnace requirements the shipments in November and December, 1918, were nearly 4,000,000 tons less than those made in November and December, 1917. Government control of the entire steel supply undoubtedly regulated the demand for ore, and stocks at mines and lower lake ports were somewhat reduced, so that the consumption of ore remained about the same as in 1917.

About 86 per cent of the iron ore mined and shipped in 1918 came from the Lake Superior district, in which about 60,092,000 gross tons were mined and about 62,285,000 tons shipped, compared with 63,666,068 tons mined and 63,854,752 tons shipped in 1917, a decrease of 5.6 per cent and 2.5 per cent, respectively. The average selling price at the mines in this district was $3.50 a ton compared with $3.28 a ton in 1917. The quantity mined in the states in this district—Michigan, Minnesota and Wisconsin—showed a decrease and the quantity shipped in Minnesota and Wisconsin showed a decrease, but the shipments from Michigan apparently increased slightly. The decrease in the quantity mined in the Lake Superior district, about 3,574,000 tons, was partly made up from stocks, which were depleted to the extent of about 2,202,000 tons in 1918.

The second largest iron ore producing area—the southeastern states—which includes the Birmingham district, mined and shipped in 1918 about 10 per cent of the grand total. The quantity mined in these states is estimated at 6,906,000 gross tons, compared with 8,333,766 tons mined in 1917. The shipments in 1918 are estimated at 7,249,000 tons, valued at $17,405,000, or $2.40 a ton, compared with 8,396,841 tons, valued at $16,437,775, or $1.96 a ton, in 1917. The decreases in production and shipments were respectively 17 per cent and 14 per cent.

The northeastern states—New Jersey, New York and Pennsylvania—mined approximately 1,862,000 tons, compared with 2,340,960 tons in 1917, a decrease of 20 per cent, and shipped 1,821,000 tons, compared with 2,379,393 tons in 1917, a decrease of 23 per cent.

In the western states—Colorado, New Mexico, Utah and Wyoming—there were mined about 750,000 gross tons, compared with 837,673 tons in 1917, a decrease of 10 per cent. The shipments amounted to approximately 740,000 tons, compared with 832,056 tons in 1917, a decrease of 11 per cent. The average selling value of the ore in this group of states was $1.72 a ton, compared with $1.39 a ton in 1917.

Other states, including California, Connecticut, Iowa, Maryland, Massachusetts, Missouri, Montana, Nevada and West Virginia, are estimated to have mined about 102,000 tons compared with 110,384 tons in 1917, and to have shipped about 97,000 tons, compared with 110,165 tons in 1917. The percentage of decrease was 8 per cent and 12 per cent, respectively. The estimated average selling value of ore shipped from these states was $3.90 a ton, compared with $3.86 a ton in 1917.

The shipments of ore by boat, according to figures compiled by the Lake Superior Iron Ore association, amounted to 61,156,732 tons, and the all-rail shipments to blast furnaces, including those near Duluth, as estimated by THE IRON TRADE REVIEW, amounted to 1,885,000 tons. The figures do not include about 879,000 tons of manganiferous iron ore mined and shipped from Lake Superior district.

Estimate of 1918 Ore Production

District	Ore mined 1917 (actual)	Ore mined 1918 (estimated)	Ore shipped 1917 (actual) Quantity	Ore shipped 1917 (actual) Value	Ore shipped 1918 (estimated) Quantity	Ore shipped 1918 (estimated) Value
Lake Superior:						
Michigan	17,868,601	17,131,000	17,712,916	$62,833,624	17,805,000	$63,930,000
Minnesota	44,595,232	41,870,000	44,962,127	142,303,000	43,303,000	150,261,000
Wisconsin	1,202,235	1,091,000	1,179,709	3,913,437	1,177,000	3,863,000
Total	63,666,068	60,092,000	63,854,752	$209,648,209	62,285,000	$218,044,000
Southeastern states:						
Alabama	7,037,707	5,745,000	7,101,586	13,049,535	6,107,000	13,345,000
Georgia	226,630	232,000	211,501	524,175	236,000	927,000
North Carolina	599,526	82,000	611,417	1,681,616	82,000	493,000
Tennessee		417,000			415,000	1,243,000
Virginia	469,903	430,000	472,337	1,182,449	409,000	1,397,000
Total	8,333,766	6,906,000	8,396,841	$16,437,775	7,249,000	$17,405,000
Northeastern states:						
New Jersey	489,943	470,000	474,708	2,341,160	423,000	2,307,000
New York	1,304,317	875,000	1,356,011	7,381,333	889,000	5,661,000
Pennsylvania	546,700	517,000	548,674	873,320	509,000	975,000
Total	2,340,960	1,862,000	2,379,393	$10,595,813	1,821,000	$8,943,000
Western states:						
Colorado, New Mexico, Utah, Wyoming	837,673	750,000	832,056	1,153,455	740,000	1,273,000
Other states	110,384	102,000	110,165	425,193	97,000	378,000
Grand total	75,288,851	69,712,000	75,573,207	$238,260,444	72,192,000	$246,043,000

Adjusting Nation's Claims Abroad

Liquidating Commission is Named by Secretary Baker to Wind Up Business Affairs With British and French Governments and Manufacturers Involving Billions—Will Also Dispose of Property

WASHINGTON, Feb. 18.—Quick work is expected to be done by the United States liquidation commission, named last week by Secretary of War Baker, with the approval of the President, in adjusting claims of the war department in favor of or against the French and British governments.

These claims, involving billions of dollars, grew out of arrangements abroad and in this country for the furnishing of supplies, munitions, etc. The commission will dispose of movable and immovable properties in France and England used by the American forces, and in general will liquidate the business and financial affairs in France and England of the American expeditionary forces.

The commission will maintain its headquarters in Paris, and will work closely with the services of supply of the American expeditionary forces, which will function substantially as heretofore. Claims against the French and British governments arising out of arrangements and contracts made in the United States with the war department will be developed, as far as practicable, disposed of, and then referred to the commission for final adjustment and disposition by Chester W. Cuthell, who was recently designated by the secretary of war as special representative of the war department and assigned to these duties.

The commission will consist of Edwin B. Parker, former priorities commissioner of the war industries board, Senator Henry E. Hollis, of New Hampshire; Homer H. Johnson, Cleveland, and Brig. Gen. Charles G. Dawes, Chicago, who is now serving with the American expeditionary forces abroad. A fifth member may be appointed later. Senator Hollis and Mr. Johnson will sail at once for Europe, and will be followed within a fortnight by Judge Parker.

Plan Proposed by Pershing

The plan of adjusting the obligations and disposing of the property of the American expeditionary forces abroad was proposed by General Pershing, and it has been worked out in detail by Mr. Baker in conference with Edward R. Stettinius, who since last July acted as special representative in Europe. Mr. Stettinius, having completed the specific tasks assigned to him, has terminated his official connection with the war department. He will, however, return to France with Judge Parker and assist in the organization of the commission before resuming his former business connections.

While the amount that will be involved in the liquidation process has not been announced, it is known to involve many billions of dollars. Informal contracts for war material made by the war department in Great Britain and France alone involve approximately $1,200,000,000.

Most of the work will be done by the commission in Paris. The work in London is said to have been almost finished. It was possible to expedite the work in London by reason of the identity of language and the methods of doing business in Great Britain.

After the United States entered the war it pooled its materials and supplies with those of the allies, and an understanding was reached regarding the exchange of uses of the materials and equipment such as steel, railroads, motor trucks, stores of different kinds, munitions, etc. The basis for the use of these materials was determined by the high commands, and the liquidation commission will apply the general principles adopted to specific cases requiring financial adjustment. Inventory of the enormous amount of materials in France owned by the United States is understood to be near completion, but until the work is done nothing will be given out with respect to the money they represent.

Many things, such as artillery, munitions, airplanes, etc., will be brought back to the United States, while equipment such as cranes, machine tools, railroad engines, cars and railroad trackage will be left in France. The terms upon which material will be disposed of has not been made known.

Progress in liquidation of American enterprises abroad is indicated by the report that of the $450,000,000 of unfilled purchase orders and contracts involving the United States at the time the armistice was signed $350,000,000 were canceled some time ago. It has been estimated that 90 per cent of all American purchases in England were made through the British ministry of munitions, while in France the bureau of accounts in Paris required that all army purchases in excess of $1000 be vised by the French government. Many unfilled contracts in Great Britain were canceled voluntarily and a total of 323 small contracts with private producers in France, involving $1,609,000, are said to have been canceled without any cost to this government. Thirty-three contracts, involving an unfilled portion of $1,750,000 in contracts were canceled at an estimated cost of $100,000. In Spain 11 contracts aggregating $1,000,000 have been canceled without expense. In France 975 purchase orders, involving $2,600,000, have been canceled without expense to the United States and in the case of 244 unfilled contracts aggregating $1,140,000 the cost of cancellation ranged from 12 to 15 per cent.

Other figures relate to the cancellation of 163 purchase contracts with private parties, purchased through the French government, involving $8,425,000, at a cost of only $10,000. Many other figures have been cited to show the percentage of loss that the United States will ultimately sustain from adjusting and settling claims along the line of work that will be taken up by the liquidation commission.

Remove Bars on Iron and Steel for Switzerland

Washington, Feb. 18.—Removal of restrictions upon the exportation of iron and steel, except high speed steel, to Switzerland, and numerous commodities, including machinery, to Norway, Sweden and Denmark marked part of the activities last week of the war trade board in letting down bars for neutral countries. Some of the moves in easing up the export situation, made by the shipping board as well as by the war trade board, resulted from negotiations at Paris and affected all of the associated powers. A large part of the 910,079 tons of Danish, Swedish and Norwegian shipping now under charter to the shipping board is to be returned. The board announced its willingness immediately to begin releasing to the Scandinavian governments the ship-

ping now under charter or to cancel the contracts and return the vessels direct to their owners, with the exception of such vessels as might be required for the use of the commission for relief in Belgium or European civilian relief or of the governments associated with the United States in the war. Dutch ships seized by the United States are being released as rapidly as their present voyages or commitments are completed and the same procedure will be followed with respect to the other vessels.

The shipping board last week had under control 81 Dutch ships of 37,246 deadweight tons, 61 Norwegian ships of 27,495 deadweight tons, 46 Norwegian sailing ships of 11,842 tons and 21 Swedish steamers of 144,911 tons.

The war trade board also has amended its general import license, issued Sept. 18, 1918 (W. T. B. 234), which has the effect of rescinding the provision that transcontinental rail shipments were not within the scope of such license.

Would Use Government Tools in Schools

WASHINGTON, Feb. 18.—Consideration is being given by the house committee on military affairs to a bill introduced by Representative Caldwell, New York, to have machine tools owned by the war department loaned to technical schools and colleges. The secretary of war would be required to lend to trade and technical schools and universities and other recognized educational institutions such machine tool equipment as the schools could use and which cannot be used by the government.

It is provided that "each institution so equipped shall be responsible to the United States of America, under regulations to be prescribed by the secretary of war for the proper care and safe return of such equipment when demanded, ordinary tear and wear excepted."

It is stated that probably one-third of the tools owned by the government will be absorbed by the arsenals and that the remainder should be turned over to the schools; also that there is no ready market for the tools at present and their sale by the government might demoralize the machine building industry. This, according to Representative Caldwell, will also entail the storage of these tools at the government's expense, and storage charges on this class of machinery approximates 20 cents per square foot per annum, it is asserted.

It is contended that the government can well afford to give this machinery outright to schools that will put it to good use as it then would go back to the use of the people who have paid for it in the first place.

The argument is made that this plan should appeal to labor organizations as it will put each of their members in the mechanical trades in a position to better his equipment for competition in the labor market, and at the same time will put to the best practical use equipment which he and his fellow machinists have already produced.

It is pointed out that there is a precedent in this proposal in that the war department has been for many years empowered to lend military equipment to national guard organizations and other bodies for purposes of military training. This material can, of course, all be recalled in case it is needed in the event of another war. Before munitions can be made, however, it is asserted, the United States must have the machines with which to make them and this proposal is held to give a means not only to educate all who desire to become mechanics in the public schools of America but also provides storage on this material at no cost to the government and insures its availability when needed.

Shows Freight Gain in Allegheny Region

WASHINGTON, Feb. 18.—The annual report of C. H. Markham, director for the Allegheny region under the railroad administration, contains statements of interest to the iron and steel industry. The report, dated Dec. 31, 1918, was addressed to former Director General McAdoo, and has just been made public.

"Report of blast furnace operations Dec. 31 shows no furnaces out due to transportation deficiencies," the report says. "In addition to their usual business, the lines in this region handled a heavy tonnage of coal, coke, ore and miscellaneous supplies to the steel plants and blast furnaces in the Pittsburgh district and miscellaneous supplies to over 40 munition and shipbuilding plants on the eastern seaboard. As the Allegheny region was a center of most intensive activity in war work, it was necessary to move traffic over lines of least resistance, route freight so as to avoid congested districts and elimination of passenger service in order to transport the large number of employes of munition and shipbuilding plants to and from work, furnish those plants needed supplies and take care of heavy troop movements.

"As illustrating the density of freight traffic, in October the region had 5.6 per cent of the average mileage of federal controlled railroads in the United States while it transported 14 per cent of the total net ton-miles of all such railroads. The results of operation are not available for November and December, but for the period from June to October, inclusive, the region handled 1,233,396,959, or 4.4 per cent more tons one mile and transported 447,002,496, or 14.7 per cent more passengers one mile than in the corresponding period the previous year. All coal loading incresed 37,400 cars, or 14.8 per cent, compared with December, 1917. Total revenue freight loaded increased 64,803 cars, or 8.9 per cent; and total revenue freight received from connections increased 108,913 cars, or 17.2 per cent, compared with the same month last year. Tidewater coal dumped was 2,158,491 tons, increase of 471,117 tons, or 21.8 per cent, compared with December, 1917."

"In December," Mr. Markham's report continues, "the locomotive output also compares favorably with the previous month. Railroads received 14 locomotives built in their own shops and 19 from locomotive builders, leaving 383 locomotives, including Pennsylvania lines west, to be received to complete the 1918 program. Ability to recruit labor forces, along with open weather, enabled satisfactory progress to be made on addition and betterment work. Completion of enginehouse and yard improvements is being pushed, and a large proportion of these facilities are being completed."

For the southern region, another

iron and steel district, the report of the director, B. L. Winchell, says that "for the nine-month period to August, 1918, inclusive, there was an increase in carloading of 1.7 tons, or 7.1 per cent over 1917, the loading for 1918 being 25.5 tons as compared with 23.8 tons for the corresponding period of 1917." In this region train loading had increased in October to 6.7 per cent over the same month in the previous year, from an increase of only .8 per cent in the month of April over the year before.

Congress Cutting Gage Fund; Help Needed

WASHINGTON, Feb. 18.—Manufacturers and engineers who would have the bureau of standards continue to test gages will have to rally to the bureau's support at once if congress is to be prevailed upon to provide sufficient funds. The legislative, executive and judicial appropriation bill for 1920 has passed the house with only $40,000 authorized for the purpose, and this sum has been provided in the bill as reported in the senate. The amount asked by the bureau, through the department of commerce, is $150,000. Such a sum was authorized for the fiscal year ending June 30, 1919.

The branch laboratory at Bridgeport, Conn., has been discontinued and that at New York will have to be abandoned if the amount of the fund is not increased. The Cleveland branch can, with the co-operation of the Cleveland chamber of commerce, manufacturers and engineering societies, be continued under the tentative appropriation of $40,000, part of which fund, however, must go to carrying on the work in the main laboratory in the plant of the bureau in Washington. At least $75,000 to $100,000 must be authorized to adequately maintain the New York and Cleveland branches.

The Bridgeport laboratory was abandoned soon after the armistice was signed. The ordnance bureau of the war department had devoted between $250,000 and $300,000 to the work, which was in addition to the bureau of standards' appropriation. Under the present bill the $40,000 is "to provide by co-operation of the bureau of standards, the war department, the navy department and the council of national defense for the standardization and testing of gages and screw threads," but it is understood little, if any, funds will be available from any of these sources except the bureau's appropriation.

Appeal to Congressmen

Some manufacturers and engineering associations have already appealed to their senators and representatives to increase the amount of the appropriation, and it is hoped at least $100,000 will result from these efforts. It is evident, however, as in all such legislative fights, the support in favor of such action must be universal.

It is the hope to continue the Cleveland and New York offices as headquarters for men in the field who are to co-operate with the manufacturers in testing gages and in research work. The plan is to carry on the bulk of the work in Washington where, with overhead already provided and with plant equipment of $130,000 at hand, it can be expedited. Most of the Washington organization is still intact and requires practically only the funds to pay salaries.

The pending bill has already been reported in the senate and debate on the legislative provisions has begun. With the pressure of time forcing action on the measure before March 4, debate on the executive features, under which the bureau's appropriation comes, may be called at any time. As to the bureau's views of the work, the testimony of Dr. S. W. Stratton, chief of the bureau, before the senate committee on appropriations, may be of interest:

Says $40,000 is Not Sufficient

"You will remember that at the beginning of the war we were given $150,000 for the standardization of gages. That proved to be of the greatest military value; and in addition to that during the year the bureau of ordnance added to the fund something like $250,000 or $300,000.

"The making of munitions on a large scale, and making them interchangeable, taught the industries the value of standardization; and in the industrial development that is to follow, and especially the competition that we are sure to meet, the question of the use of these gages in all industries is going to be an important factor.

"When we sent in this estimate of $150,000 the war was in progress. Now we should like to have at least $75,000 in order that we may encourage and help the industries in the use of these gages as well as continue the military work which is necessary. Both of the departments have signified their intention of keeping the work going. In fact, they must do it.

"We think that with $75,000 we can do this work, so far as we see it now, for both military and industrial purposes. The $40,000 allowed is not sufficient."

To Manufacture Acetylene for Industrial Use

Plans for the construction of a plant at Columbus, O., for the manufacture of compressed acetylene for industrial purposes have been formulated by the Gas Products Co. of that city, just organized with a capitalization of $150,000. It is believed that Columbus by reason of its location in the heart of the dense industrial district, offers a large field for this class of manufacture. Stanley D. Winger, who is the moving spirit in the formation of the new company and will act as its vice president and general manager, has been prominently identified with the manufacture of compressed acetylene for industrial use. He has been general manager of the compressed acetylene department of th Oxweld Railroad Service Co., Chicago, a subsidiary of the Union Carbide & Carbon Corp. Previous to that time and up to its absorption by the Union Carbide & Carbon Corp., he was manager of the railroad sales and service department of the Prest-O-Lite Co., Inc., Indianapolis. George S. Butler of Columbus is president, and John R. Gobey, secretary and treasurer of the new company. Others interested in the enterprise are James Beatty and J. L. Bracken, president and vice president, respectively, of the Federal Glass Co. D. C. Downey, president of the W. C. Downey Co., Springfield, O.; Howard Auld, of the D. L. Auld Co., Columbus, and E. Mithoff Nicholas and Walter Martin. It is expected to have the plant in operation in about 90 days.

Will Order Barges

Director General of Railroads Hines has authorized construction of 20 steel combination cargo barges to be placed in operation in the New York state barge canal next spring. The boats will be 150 feet long, 22 feet wide, will have a carrying capacity of 500 tons and 400-horsepower motive plant.

Fight High Freight Rate on Iron Ore

Independent Operators Declare Continuance of $1 a Ton Rate from Mines to Dock Will Close All but Low Cost Mines—Legislature May Appeal to Railroad Administration for Restoration of 63½ cent Tariff

(Special Correspondence)

DULUTH, Minn., Feb. 15.—Independent mine operators have inaugurated a campaign seeking to bring about the restoration of the former iron ore freight rate of 63½ cents from the mines to the docks. A resolution has been introduced in the Minnesota legislature aiming to have that body petition the railroad administration to restore the rate that was superseded on June 25, 1918. A delegation of mining men appeared before the legislature, and the resolution as presented pointed out that a continuance of the $1 a ton rate would result in the closing of all but the low-cost mines, thus bringing about a heavy reduction in shipping from the Minnesota ranges during the 1919 season, throwing thousands of men out of work.

It is claimed that the higher rate would in effect discriminate against the Minnesota mines in favor of those in Alabama, Virginia, Maryland, eastern Pennsylvania, New Jersey and northern New York which are supplying blast furnaces in competition with those stacks using Minnesota ores. The committee in charge of the resolution further contended that the ore-carrying railroads in Minnesota did not require the advance in the freight rate as past investigations have shown that they were making good profits in handling that tonnage at the former figure, 63½ cents. The evidence used by the independent mine operators in having the ore rate to the docks cut from 80 cents to 63½ cents in 1912 was dug up to prove their contention.

Operators Review Case

The statement the producers made to the legislature follows:

The railroad transportation of Minnesota iron ore began in 1884 on the Duluth & Iron Range. Since then four other railroads have participated, the Duluth, Missabe & Northern beginning in 1893, the Great Northern in 1898, the Soo in 1911 and the Northern Pacific in 1913. All use the same style of equipment and docks. The interstate commerce commission in 1915, after thorough investigation, concluded in its decision hereinafter referred to, that the Great Northern could carry ore as cheaply as the Duluth, Missabe & Northern and Duluth & Iron Range, and that any rate fair to these three roads should be satisfactory to the Soo and Northern Pacific on Cuyuna range traffic. Consequently you are justified in viewing this freight rate as one applying equally to all ore produced in Minnesota.

Prior to 1912 the rate was 80 cents from the Mesabi, 90 cents to $1 from the Vermilion. The Soo had established a rate of 65 cents from the Cuyuna. During the winter of 1911-12 the Duluth & Iron Range and Duluth, Missabe & Northern voluntarily reduced their rates to 60 cents, and the Great Northern followed suit. On April 5, 1915, the interstate commerce commission ordered the Mesabi and Vermilion rate reduced to 55 cents, effective June 15, 1915. The Soo and Northern Pacific immediately reduced their rate on Cuyuna ore to this figure. In the spring of 1917 the interstate commerce commission gave special permission to increase this rate to 63½ cents.

There it rested until June 25, 1918, when Director General McAdoo's order increased it to $1; which is now in effect. In addition, the federal railroad administration has decreed that the mining company must pay in advance the full cost of the railroad spur leading to its shaft or pit, and also pay the full cost of stockpile tracks, rental and operating cost of locomotive serving stockpiles, the expense of shifting stockpile tracks, and has approved a system of demurrage charges on iron ore in docks and awaiting loading into boats. They also draw on us for freight charges at once after a vessel is loaded, where before we had 45 to 60 days to pay these heavy bills.

All of this has been added since the order of the interstate commerce commission, dated April 5, 1915, which ridiculed the Great Northern's contention that 55 cents was not a liberal rate. It is true that the cost of operation has substantially increased since 1915, but the total ore movement in 1917-1918 averaged 51.35 per cent greater than the average for 1913-14: a greater volume handled by practically the same docks, tracks and equipment surely means large economies. Furthermore, the official United States bulletin of Feb. 3, 1919, published as the authorized statement of Director General Hines, that there are but 11 railroads in the entire country who for the 13 months ending Jan. 31, 1919, have paid in to the railroad administration excess earnings over $1,000,000. Among them we find the Missabe, the Iron Range and the Northern Pacific. The Missabe leads all the railroads in the country with $10,400,000, which based on its 1918 traffic amounts to 50½ cents per ton of iron ore. The same surplus return per ton on the Duluth & Iron Range is 38.6 cents. These roads returned these huge excess earnings operating at 63½ cents during April, May and until June 25, and at $1 thereafter.

Call it Discrimination

On the one hand you have these astonishing figures, and on the other the statement of the interstate commerce commission in 1915 that all the Minnesota iron ore railroads can prosper equally on the same freight rate per ton. The producers of Minnesota iron ore merely ask you to vote a protest against this discrimination, this unjust and monstrous imposition by the federal railroad administration, which is plainly taxing our locality, our natural resources, and our industry to help it maintain its scheme of railroading in other parts of the country. The boldness of this tax has no parallel, and it injects into the nation's commerce a completely new theory.

Should your consideration and our joint efforts restore the 63½ rate, it does not follow that the mines would receive more money for their ore. Our anxiety is predicated on the fact that competition has been restored in the pig iron industry, and that the Birmingham district and the Atlantic coast states have large pig iron producing capacities that use iron ores mined at or near the furnaces, or they receive cheap foreign ores by boat from Spain, Chili, Newfoundland and Cuba. They compete with the districts using our ore. They stand between us and consumers and the Atlantic seaboard, to which all pig iron and steel must go if it is to partake in the export business so much anticipated and needed. Consequently, any reduction in freight would logically merely reduce the price of our ore delivered at furnaces, but that would stimulate buying and consumption, and thus help us to operate our mines.

The iron and steel industry today is in a peculiar state. Operation is at about 50 per cent, and new business is not coming in faster than 25 per cent. Practically no Minnesota ore is yet sold for shipment in 1919. There may be a lot of business a short way ahead, and if Minnesota iron ore is to obtain its fair share, this freight rate must be reduced. At present a furnace using Minnesota ore, it takes two tons of ore to make one ton of pig iron, is penalized about 75 cents per ton of pig iron, because of this $1 per ton freight rate on ore, and this tax, for that is precisely what it is, of 75 cents must be done away with before the commercial prestige of our Minnesota ores is restored in the markets custom has developed for them.

The passing of this resolution by both houses of the legislature of Minnesota does not make it mandatory for Director General Hines to restore the old rate, but it will show that we resent and

protest against a most notable discrimination, and that we demand its discontinuance. Should we permit it to go on unopposed, the federal railroad administration surely will do nothing.

Contrary to reports, no labor troubles are looked for in the Minnesota iron fields during the coming summer. An official of one of the companies, who has just completed a round of the ranges, asserted that the miners are getting steady employment and are earning large wages this winter. There has been some talk of an 8-hour day in some of the open pits, but the matter has not yet assumed definite shape. It is well known that quite a number of I. W. W. members are among the Finnish miners on the ranges, but they are in a minority. The American Federation of Labor is reported to be active among the higher class of mine workers, but no trouble is threatened from that source. One thing noted is that with more men available the tendency is toward greater efficiency on the part of labor. It is believed that there now will be less of a disposition on the part of the men to shift from one mine or company to another.

Under the most favorable weather conditions the ranges have experienced in years, operators have made good showings so far in winter development work, operations and stockpiling. The Oliver Iron Mining Co. continues to operate at its various mines in the Lake Superior district with a force of approximately 12,500 men. Work in its underground mines and stripping is continuing. The company's 300-ton revolving steam shovel is removing the overburden in the Sellers pit at Hibbing this winter. It was used last season with success, loading ore at the Hull-Rust mine.

The Cleveland-Cliffs Iron Co. has taken over a Great Northern iron ore property near Marble, Minn., on the Mesabi range. It is proposed to remove the overburden for open-pit extraction. It is expected that the property will become a substantial producer. Reports are current to the effect that the Cleveland-Cliffs company will also develop a tract south of the Buffalo-Susquehanna mine that it took over from the Great Northern interests some time ago. It will be opened for underground operations.

The Jones & Laughlin interests plan to erect a large iron ore washing plant on the Hill Annex property near Marble. That mine has a tremendous tonnage, and was developed as an open pit by the Great Northern ore interests and leased to its present operators a year ago. It is said that the washing plant will approach in capacity the one erected by the Oliver Iron Mining Co. at Coleraine.

The 23 mines owned by the state of Minnesota set a tonnage record of 4,709,437 tons during 1918, and on a basis of 25 cents a ton royalty netted an income of $1,117,359, according to a statement just issued.

Blast furnace and open-hearth furnaces of the Minnesota Steel Co., here, are now being operated on a basis of about 60 per cent of capacity. Between 500 and 600 men were laid off recently. At present 10 of the 14 open-hearth furnaces are in operation, and two blast furnaces are in blast. Approximately 3400 men are being employed at the plants of the steel company, and the Duluth Universal Portland Cement Co.

The slowing down has been brought about through a falling off in industrial orders to take the place of the tonnages involved in canceled war contracts. Delays in the arrival of machinery to be set up in the merchant and blooming mills also was a factor in the curtailment. The rail mill at the Duluth plant is at present equipped for running on standard rails, but it is intimated that the mill will be arranged for the production of light rails also.

Attorneys for the United States Steel Corp. have filed an answer in Capt. Alexander McDougall's celebrated case for $40,000,000 for alleged infringement of a patent on a process for washing sandy iron ores. The answer claims that the patent is invalid and that the supposed invention was an adaptation of old processes.

Unites Departments

The Midvale Steel & Ordnance Co. and Cambria Steel Co. have consolidated their order and shipping department with their general sales department and hereafter the busines formerly handled by these departments will be taken care of by five separate divisions, each division handling the products or customers indicated by the name of the division. These general divisions and the respective managers which have been appointed are as follows:

Bar and billet division, L. R. Steuer; forging division, Stuart Hazlewood; railroad division, J. C. C. Holding; distributors division, Edward Price Jr. The manager of the structural division is to be announced later.

These managers will be in entire charge of both sales and orders for products assigned to their respective divisions.

Normal Prices

Largely Apply to Refractories—Little Improvement in Demand

Pittsburgh, Feb. 18.—Prices of fire brick are merely nominal as demand is practically at a standstill. Blast furnace and steel interests as a rule are well covered against the repair work they now are doing but Kentucky manufacturers are beginning to experience some increase of orders. Small quantities of first quality Pennsylvania brick are offered as low as $40 per 1000, but the more general minimum quotation is $45 for this grade. It is claimed that labor costs still are high and that as yet there have been only slight and unimportant declines in brick materials. Between the slack demand on the one hand and high producing costs on the other few plants are running as high as 60 per cent of capacity and a number of makers are down to 50 per cent operations.

Labor is much more plentiful than it has been and there has been a marked increase in its efficiency, now that the men realize that more remunerative jobs are no longer available. It is asserted, however, that the greater efficiency of the workmen does not materially lower costs owing to the limited scale of plant operations, and that storing brick, which is common now that production exceeds the outlet, involves a charge of $1 per 1000 going into the sheds and a similar charge for taking the material out. Under these circumstances, manufacturers are inclined to hold for present prices.

Refractories

(Per 1000 f. o. b. works)

FIRE CLAY BRICK
(First Quality)

Pennsylvania	$40.00 to 50.00
Ohio	45.00 to 50.00
Kentucky	40.00 to 50.00
New England	55.00 to 65.00

FIRE CLAY BRICK
(Second Quality)

Pennsylvania	$35.00 to 45.00
Ohio	35.00
New England	48.00 to 58.00

SILICA BRICK

Pennsylvania	$50.00 to 60.00
Chicago	55.00 to 65.50
Birmingham	45.00 to 55.00

MAGNESITE BRICK
(Per Net Ton)

9 x 4½ x 2½	$90.00 to 95.00

CHROME BRICK
(Per Net Ton)

9 x 4½ x 2½	$130.00 to 140.00

BAUXITE BRICK
(Per Net Ton)

55 per cent	$ 40.00 base
76 per cent	100.00 base

Production of Steel Ingots and Castings,

IN 1917 the mills of the United States produced 33,067,700 tons of finished iron and steel rolled products, which exceeded the 1916 total of 32,380,389 tons by 687,311 tons, and is the highest yearly figure on record to that date. Somewhat belated statistics just issued by the American Iron and Steel institute disclose many interesting facts in regard to the production of steel ingots and castings, finished forms of rolled iron and steel and miscellaneous iron and steel products for the year 1917. The iron and steel rails mills made 2,944,161 tons, compared with 2,854,518 tons in 1917, a gain of 89,643 tons. Plate and sheet production increased from 7,453,980 tons, to 8,267,616 tons, while the structural shape output increased 80,036 tons, the production in 1916 being 3,029,964 tons, and in 1917, 3,110,000 tons.

Of the total output of 45,060,607 tons of steel ingots and castings, 32,087,507 tons was basic open-hearth, 2,061,386 tons acid open-hearth, 10,479,960 tons bessemer, 126,716 tons crucible, 304,543 tons electric and 495 tons miscellaneous. Included in the basic open-hearth figure are 3,791,830 tons of ingots and castings made by the duplex process. This compares with 3,436,457 tons in 1916, a gain of 355,373 tons, or 10.3 per cent. Duplex steel was produced by 10 works in six states in 1917, as against nine works in five states in 1916. The output of steel ingots amounted to 43,619,200 tons, compared with 41,401,917 tons the previous year, while the steel casting production totaled 1,441,407 tons, as against 1,371,763 tons in 1916.

Production of seamless steel tubes increased 36,202 tons, or 19.01 per cent in 1917. A total of 226,675 tons were made in that year, as against 190,473 tons in 1916. The output of wrought iron and steel pipe and boiler tubes was 2,486,977 tons, of which 2,213,087 tons were steel and 273,890 tons iron.

PRODUCTION OF FINISHED ROLLED IRON AND STEEL BY LEADING PRODUCTS, GROSS TONS, 1917.

Products.	Iron.	Steel.	Total
Rails	.....	2,944,161	2,944,161
Plates and sheets	29,071	8,238,545	8,267,616
Nail and spike plate	363	22,481	22,894
Wire rods	2,287	3,134,851	3,137,138
Structural shapes	1,410	3,108,590	3,110,000
Merchant bars	983,926	5,226,031	6,209,957
Bars for reinforced concrete work	1,497	469,687	471,184
Skelp, flue, and pipe iron or steel	336,891	2,337,340	2,674,231
Long angle splice bars, tie-plate bars, etc.	70,651	536,173	606,824
Hoops	.....	347,186	347,186
Bands and cotton-ties	1,807	489,086	490,893
Rolled sheet piling, not including fabricated	.....	18,606	18,606
Railroad ties	.....	9,103	9,103
Rolled forging blooms, forging billets, etc.	221	1,801,487	1,801,708
Exports of blooms, billets, sheet bars, etc.	2,343	1,156,084	1,158,427
All other finished rolled products	437,570	1,360,232	1,797,802
Total Gross tons.	1,867,757	31,199,943	33,067,700

PRODUCTION OF PLATES AND SHEETS BY KINDS, 1916-1917.

Kinds.	1916—Gross tons.			1917—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Universal plates	4,015	1,230,219	1,234,234	5,975	1,189,224	1,195,199
Sheared plates—						
Rolled on single stands	1,463	1,981,490	1,982,953	2,025	2,394,340	2,396,365
Roughed and fin. on sep. stands	.....	470,287	470,287	.....	866,674	866,674
Black sheets made on sheet or job. mills	5,947	2,243,650	2,249,597	20,416	2,347,336	2,367,752
Black plates, inc. black plates for tinning and black plate specialties rolled on tin mills	1,878	1,525,121	1,526,999	655	1,740,971	1,741,626
Total	13,303	7,440,677	7,453,980	29,071	8,238,345	8,267,616

PRODUCTION OF WIRE RODS, GROSS TONS, 1888-1917.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1888	279,709	1896	623,986	1904	1,699,028	1912	2,653,583
1889	363,951	1897	970,736	1905	1,808,688	1913	2,464,807
1890	487,699	1898	1,071,683	1906	1,871,614	1914	2,431,714
1891	536,607	1899	1,036,398	1907	2,017,583	1915	3,095,007
1892	627,829	1900	846,391	1908	1,816,940	1916	3,518,746
1893	537,372	1901	1,365,934	1909	2,235,685	1917	3,137,138
1894	673,462	1902	1,574,293	1910	2,341,836	.....	.....
1895	791,150	1903	1,503,455	1911	2,450,453	.....	.....

PRODUCTION OF STRUCTURAL SHAPES, GROSS TONS, 1892-1917.

Years.	Tons.	Years.	Tons.	Years.	Tons.
1892	453,967	1901	1,013,150	1910	2,266,890
1893	387,307	1902	1,300,326	1911	1,912,367
1894	360,305	1903	1,065,813	1912	2,846,487
1895	517,990	1904	949,146	1913	3,004,972
1896	495,571	1905	1,660,519	1914	2,031,194
1897	283,790	1906	2,118,772	1915	2,437,008
1898	702,197	1907	1,940,332	1916	3,029,964
1899	850,376	1908	1,083,181	1917	3,110,000
1900	615,161	1909	2,275,562	.....	.....

PRODUCTION OF TINPLATES AND TERNE PLATES, 1891-1917.

Years.	Tinplates.	Terne plates.	Total pounds.
1891 (second 6 months)	268,400	1,868,343	2,236,743
1892 (calendar year)	13,921,296	28,197,896	42,119,192
1893	84,536,209	39,070,498	123,606,707
1894	102,223,407	64,120,002	166,343,409
1895	165,927,907	88,683,488	254,611,395
1896	270,151,785	89,058,013	359,209,798
1897 (first 6 months)	203,028,288	49,545,643	252,573,931
1897 (second 6 months)	.....	.....	332,205,619
1898 (calendar year)	.....	.....	732,280,600
1899	.....	.....	808,360,000
1900 (cen. year end. May 31)	707,718,239	141,285,783	*850,004,493
1901 (calendar year)	.....	.....	894,411,840
1902	.....	.....	806,400,000
1903	.....	.....	1,075,200,000
1904 (cen. year end. Dec. 31)	867,526,985	158,857,986	*1,032,940,708
1905 (calendar year)	.....	.....	1,105,440,000
1906	1,100,373,000	193,367,000	1,293,740,000
1907	996,650,000	156,447,000	1,153,097,000
1908	1,048,896,000	154,179,000	1,203,075,000
1909	1,179,858,000	190,930,000	1,370,788,000
1910	1,450,821,000	168,184,000	1,619,005,000
1911	1,597,629,000	158,441,000	1,756,070,000
1912	1,965,650,000	191,396,000	2,157,055,000
1913	1,708,186,000	136,944,000	1,845,130,000
1914	1,939,785,000	146,195,000	2,085,980,000
1915	2,301,825,054	163,470,646	2,365,295,700
1916	2,552,224,275	214,176,952	2,766,401,227
1917	3,233,314,911	153,891,653	3,387,206,564

PRODUCTION OF WIRE NAILS IN 100-LB. KEGS, 1888-1917.

Years.	Production.	Exports.	Consumption.	Years.	Production.	Exports.	Consumption.
1888	1,500,000	13,414	1,486,586	1903	9,631,661	704,546	8,927,115
1889	2,435,000	19,172	2,415,828	1904	11,926,661	734,554	11,192,107
1890	3,135,911	18,395	3,117,516	1905	10,854,892	799,734	10,055,158
1891	4,114,385	18,986	4,095,399	1906	11,486,647	1,035,703	10,450,942
1892	4,719,524	21,387	4,698,137	1907	11,731,044	945,035	10,786,009
1893	5,095,945	27,451	5,068,494	1908	10,662,972	593,819	10,069,153
1894	5,661,801	38,920	5,642,881	1909	13,916,053	686,687	13,229,366
1895	5,841,403	53,012	5,788,391	1910	13,704,909	980,295	11,744,607
1896	4,719,860	95,635	4,624,222	1911	13,437,779	1,200,957	12,236,821
1897	8,997,243	129,767	8,867,479	1912	14,620,700	1,530,353	13,129,347
1898	7,418,475	307,190	7,111,285	1913	13,550,727	977,477	12,582,250
1899	7,618,130	750,781	6,867,349	1914	13,132,814	809,167	12,323,647
1900	7,233,979	613,858	6,620,121	1915	14,583,036	2,051,478	12,531,551
1901	9,803,822	420,806	9,383,316	1916	17,147,665	3,363,876	13,783,789
1902	10,982,346	695,391	10,286,555	1917	17,040,660	2,574,048	14,466,619

PRODUCTION OF IRON AND STEEL PLATES AND SHEETS, 1888-1917.

Years.	Gross tons.	Years	Gross tons.	Years.	Gross tons.
1888	609,527	1898	1,448,301	1908	2,049,693
1889	716,496	1899	1,903,505	1909	4,234,348
1890	809,961	1900	1,794,529	1910	4,955,484
1891	678,927	1901	2,254,495	1911	4,486,049
1892	751,460	1902	2,695,409	1912	5,875,080
1893	674,345	1903	2,509,665	1913	5,751,037
1894	652,900	1904	2,421,386	1914	4,710,246
1895	991,450	1905	3,532,230	1915	6,077,694
1896	965,776	1906	4,182,186	1916	7,453,980
1897	1,207,296	1907	4,248,832	1917	8,267,616

Finished Rolled Iron and Steel in 1917

This is compared with a total of 2,651,058 tons in 1916, of which 2,372,941 tons was steel and 278,117 tons iron. The merchant bar production totaled 6,209,957 tons, 5,226,031 tons of which was steel and 983,926 tons iron. In 1916, 6,230,302 tons of merchant bar was made, the steel tonnage being 5,236,354, and the iron, 993,948.

TOTAL PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL, 1887–1917.

Years	Iron and steel rails.	Plates and sheets.	Nail plate.	Wire rods.	Structural shapes.	All other finished rolled products.	Total. Gross tons.
1887.	2,139,640	603,356	308,432	.....	.....	2,184,279	5,235,706
1888.	1,403,700	609,827	289,991	279,769	.....	2,034,162	4,617,349
1889.	1,522,204	716,496	256,409	363,851	.....	2,374,968	5,236,928
1890.	1,885,307	809,981	251,828	457,090	.....	2,618,660	6,022,875
1891.	1,307,176	678,927	223,312	536,607	.....	2,644,941	5,390,963
1892.	1,551,844	751,460	201,942	627,829	453,987	2,579,432	6,165,814
1893.	1,136,458	674,345	136,113	537,372	367,307	2,104,190	4,975,685
1894.	1,021,772	682,900	108,262	673,402	380,305	1,795,570	4,642,211
1895.	1,306,135	991,459	95,085	791,130	517,920	2,487,845	6,189,574
1896.	1,122,010	965,776	72,137	623,986	495,571	2,236,261	5,515,841
1897.	1,647,892	1,207,286	94,054	970,736	583,790	2,497,970	7,001,728
1898.	1,981,241	1,448,201	70,188	1,071,683	702,197	3,239,760	8,513,370
1899.	2,272,700	1,903,505	85,015	1,036,396	850,375	4,146,425	10,294,419
1900.	2,385,682	1,794,528	70,245	846,291	815,161	3,575,536	9,487,443
1901.	2,874,639	2,254,425	68,850	1,365,934	1,013,150	4,772,329	12,349,327
1902.	2,947,933	2,665,409	72,936	1,574,398	1,300,336	5,383,219	13,944,116
1903.	2,992,477	2,599,665	64,102	1,503,455	1,095,813	4,952,185	13,207,697
1904.	2,284,711	2,421,398	61,601	1,099,028	949,146	4,597,497	12,013,381
1905.	3,375,929	3,332,230	64,542	1,808,688	1,660,519	6,398,107	16,840,015
1906.	3,977,887	4,182,156	54,211	1,871,614	2,118,772	7,383,828	19,588,468
1907.	3,633,654	4,248,833	52,027	2,017,583	1,940,352	7,972,374	19,864,823
1908.	1,921,015	2,649,693	45,747	1,816,949	1,083,181	4,311,606	11,828,193
1909.	3,023,845	4,234,346	63,746	2,335,685	2,275,562	7,711,506	19,644,690
1910.	3,636,031	4,955,484	45,294	2,241,830	2,266,890	8,475,750	21,621,279
1911.	2,822,780	4,488,049	48,522	2,450,453	1,912,367	7,316,990	19,039,171
1912.	3,327,915	5,875,080	45,331	2,653,553	2,846,487	9,908,475	24,656,841
1913.	3,502,780	5,751,037	37,503	2,464,807	3,004,972	10,030,144	24,791,243
1914.	1,945,095	4,719,346	38,573	2,431,714	2,031,124	7,204,444	18,370,196
1915.	2,304,203	6,077,694	31,929	3,095,907	2,437,003	10,548,188	24,392,924
1916.	2,854,518	7,453,980	30,088	3,518,746	3,029,964	15,493,093	32,380,389
1917.	2,944,161	8,267,616	22,864	3,137,138	3,110,000	15,585,921	33,067,700

PRODUCTION OF STEEL INGOTS AND CASTINGS BY PROCESSES.

Years	Open-hearth.			Bessemer.	Crucible.	Electric.	Miscellaneous.	Total. Gross tons.
	Basic.	Acid.	Total.					
1903.	4,734,913	1,094,999	5,829,911	8,592,829	102,434	.....	9,804	14,534,978
1904.	5,106,367	801,799	5,908,166	7,850,140	83,301	.....	9,190	13,850,987
1905.	7,615,728	1,155,648	8,971,376	10,941,375	102,233	.....	6,963	20,023,947
1906.	9,658,760	1,321,653	10,980,413	12,375,530	127,513	.....	14,380	23,398,136
1907.	10,279,315	1,270,421	11,549,736	11,667,549	131,234	.....	14,073	23,362,594
1908.	7,140,425	606,304	7,836,729	6,116,755	63,631	.....	6,132	14,023,247
1909.	13,417,472	1,076,464	14,493,936	9,330,783	107,358	13,762	9,186	23,955,021
1910.	15,292,329	1,212,180	16,504,509	9,412,772	122,303	52,141	3,194	26,094,919
1911.	14,885,932	912,718	15,798,650	7,947,554	97,653	29,105	2,844	23,876,106
1912.	19,641,803	1,139,221	20,780,723	10,327,901	121,517	18,300	2,853	31,251,303
1913.	20,344,626	1,255,305	21,599,931	9,545,706	121,226	30,180	3,331	31,300,374
1914.	16,271,129	903,555	17,174,684	6,229,846	89,869	24,009	3,622	23,513,030
1915.	22,308,728	1,370,377	23,679,102	8,287,213	113,782	69,412	1,527	32,151,036
1916.	29,616,658	1,798,769	31,415,427	11,059,039	129,693	168,918	604	42,773,080
1917.	32,087,507	2,061,186	34,148,893	10,479,960	126,716	304,543	495	45,060,607

PRODUCTION OF WROUGHT IRON AND STEEL PIPE AND BOILER TUBES, 1916–1917.

Kinds of pipe.	1916—Gross tons.			1917—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Black, standard	110,694	1,021,949	1,132,643	90,119	969,628	1,059,747
Galvanized	39,540	202,473	291,013	25,949	249,356	275,305
Oil country goods	85,805	854,686	940,491	102,337	785,566	887,903
O. D. and misc.	136	138,627	138,763	90	115,600	115,690
Boiler tubes	52,942	95,206	148,148	55,395	92,937	148,332
Total	278,117	2,372,941	2,651,058	273,890	2,213,087	2,486,977

PRODUCTION OF CAST IRON PIPE, NET TONS, 1916–1917.

Kinds of pipe.	1916—Net tons.			1917—Net tons.		
	Pipe	Fittings.	Total.	Pipe	Fittings	Total.
Gas and water*,	874,129	60,497	934,626	696,097	52,076	748,173
Soil and plumbers'	206,494	73,213	279,707	175,625	75,303	250,928
Total	1,080,623	133,710	1,214,333	871,722	127,379	999,101

*Includes culvert pipe. Manufacturers able to separate their production report 19,725 tons of culvert pipe in 1917 and 27,014 tons in 1916.

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS, GROSS TONS, 1913–1917.

Products.	1913.	1914.	1915.	1916.	1917.
Hoops	280,896	211,026	281,759	368,164	347,186
Bands and cotton-ties	499,660	345,919	437,967	562,555	490,693
Long angle splice bars, fish-plate bars, tie-plate bars, etc	666,390	423,052	535,615	691,829	608,834
Rolled sheet piling	46,280	35,314	34,026	19,196	13,006
Railroad ties	44,344	33,349	42,269	34,311	9,103
Rolled forging blooms and forging billets	537,210	231,534	650,545	2,015,960	1,801,708
Blooms, billets, sheet bars, tinplate bars, etc., for export	98,778	91,007	562,418	512,483	1,158,427
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, shafting, tires, etc	1,067,444	937,910	1,227,455	1,669,228	1,797,802
Total	3,250,901	2,409,911	3,762,074	5,873,717	6,230,549

PRODUCTION OF RAIL JOINTS AND FASTENINGS, 1916–1917.

Articles.	1916—Gross tons.			1917—Gross tons.		
	Iron.	Steel.	Total	Iron.	Steel.	Total
Angle splice bars	3,090	159,612	162,702	4,453	177,504	181,957
Tie plates	60,447	264,271	324,718	55,148	193,977	249,125
Fish plates	300	22,602	22,902	791	20,513	21,304
Other rail joints	1,273	90,514	91,787	84	76,933	77,017
Total	65,110	536,999	602,109	60,476	468,927	529,403

PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1910	538,463	29,357	567,819	1914	577,107	69,946	646,953
1911	425,109	56,290	481,459	1915	923,251	97,896	1,021,147
1912	689,202	103,109	792,501	1916	1,306,157	86,458	1,392,615
1913	625,430	89,927	714,357	1917	1,576,806	67,529	1,644,335

PRODUCTION OF SKELP, SHOWING IRON AND STEEL SKELP SEPARATELY, GROSS TONS, 1905–1917.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1905	452,797	983,199	1,435,996	1913	327,012	2,119,804	2,446,816
1906	391,517	1,137,068	1,528,585	1913	312,746	2,189,218	2,501,964
1907	444,536	1,358,091	1,802,627	1914	264,340	1,718,091	1,982,431
1908	397,049	853,534	1,150,583	1915	262,196	2,037,266	2,299,464
1909	370,151	1,663,230	2,033,381	1916	355,445	2,572,229	2,927,674
1910	350,578	1,477,616	1,828,194	1917	336,591	2,337,640	2,674,231
1911	322,397	1,658,276	1,980,673	.....	.....	.....	.....

PRODUCTION OF CONCRETE BARS, SHOWING IRON AND STEEL CONCRETE BARS SEPARATELY, GROSS TONS, 1909–1917.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1909	.....	139,352	139,352	1914	.....	268,471	268,471
1910	4,645	236,464	241,109	1915	.....	353,408	353,408
1911	2,388	256,353	258,741	1916	2,683	458,717	461,400
1912	2,500	271,832	274,332	1917	1,497	469,687	471,184
1913	113	319,557	319,670	.....	.....	.....	.....

PRODUCTION OF MERCHANT BARS, SHOWING IRON AND STEEL MERCHANT BARS SEPARATELY, GROSS TONS, 1905–1917.

Years.	Iron.	Steel.	Total	Years.	Iron.	Steel.	Total.
1905	1,332,439	2,271,162	3,603,601	1913	944,790	2,782,324	3,607,114
1906	1,491,348	2,510,852	3,992,200	1913	1,026,622	2,930,977	3,957,599
1907	1,440,258	2,530,632	3,970,988	1914	563,171	1,960,460	2,523,631
1908	695,233	1,301,408	1,996,633	1915	687,107	3,474,135	4,131,242
1909	952,230	2,311,901	3,263,531	1916	993,948	5,236,354	6,230,302
1910	1,074,163	2,711,568	3,785,731	1917	983,926	5,226,031	6,209,957
1911	835,625	2,211,737	3,047,362	.....	.....	.....	.....

Readjusting Labor Quietly

Industries in Pittsburgh District Not Cutting Wages, but Eliminating Overtime and Picking Only Best Men

PITTSBURGH, Feb. 18.—The adjustment of the labor situation to a peace basis is progressing quietly but steadily among the many industries of western Pennsylvania. Although there has been a marked shrinkage in the size of pay envelopes of practically every workman no reduction of wage scales has been made, save possibly in the case of common labor, and here a surplus of this help and the desire on the part of idle men to find some employment, rather than action on the part of employers, has brought the decline.

Steady tapering off of business since the signing of the armistice has been followed by a material decline in all lines of industrial activity and there has not been the need for the full complement of help that the war activities demanded. The Carbon Steel Co., Pittsburgh, abandoned all commercial business with the entrance of this country into the war and devoted its entire capacity to government orders. With the termination of the war came a suspension and later a cancellation of the government orders. Having practically no commercial business to fall back on this company has shut down almost its entire plant.

The Crucible Steel Co. of America, Pittsburgh, was similarly situated and such of its plants as still are in operation are running on a limited scale. The Pittsburgh Crucible Steel Co., a subsidiary of the Crucible Steel Co. of America, is operating only five of its 12 open-hearth furnaces at Midland, Pa., and several thousand men at the various plants have been laid off. Other steel companies in the Pittsburgh district, not being entirely dependent on war orders for their operation have not been obliged to cut their labor lists so heavily, but it is reported that one of the larger independents has laid off between 4000 and 5000 men in the past month or six weeks. Even the Steel corporation subsidiaries have laid off some men, although operating at a higher rate than most of the independents.

The largest producer has had a generous backlog of old orders on which to keep going and also has been working up material for stock. New business, however, has not been coming along nearly as freely as old orders have been completed and with the exception of the National Tube Co. and the American Sheet & Tin Plate Co., the corporation subsidiaries have not sufficient business to require a full quota of help. The National Tube Co. is well provided with business in all products except the butt-weld sizes of standard pipe and the American Sheet & Tin Plate Co. is booked well ahead on sheets and at present is running its tin mills practically full against some new business, specifications and for stock.

Demands upon the Carnegie Steel Co. both by the corporation subsidiaries and nonintegrated independents are not heavy enough to necessitate a full operating force by that company and it is laying off some of its men.

While there has been no public announcement of a wage cut at any of the industrial plants of this district, what amounts to a wage reduction has come through the greater efficiency of the workmen, as a result of their realization of the fact that there no longer are two jobs for every man and that if they are to hold their jobs they must render service commensurate with what they are being paid. A surplus also permits employers to weed out the drones when they are laying off men.

Common laborers generally are on a lower wage scale, for at the plants where they have been laid off, they have in a number of instances had a chance to go back to work for less money. In these instances, where they have been getting 43 and 45 cents an hour, they have resumed at from 35 to 38 cents an hour. Retrenchment in payrolls also is being attempted by the abandonment by some of the blast furnace interests, by at least one steel company and by machinery builders and founders of the basic 8-hour day, calling for time and one-half for all work in excess of eight hours. This move involves no reduction of the hourly wage, but merely that extra remuneration for overtime work is to be dropped. In the case of the blast furnaces, the straight day means that hereafter the operative will get 12 hours' pay for 12 hours' work, instead of 14 hours' pay for 12 hours' work as was the case when overtime remuneration was paid after eight hours' labor.

Thus far, the adjustment of labor has proceeded without trouble. Here and there, the men have shown a disposition to strike at the smaller plants when announcement has been made of a straight day, with no extra pay for overtime, but when the situation has been explained they have accepted the new order. The Pittsburgh district, however, is no criterion for the other industrial centers of the country, for unlike some of the other sections, Pittsburgh has never been an organized labor stronghold and even recent concerted efforts to unionize the steel plants of the district have met with little, if any, success.

Offer $1000 for Best Essay on Labor Subject

The National Industrial Conference board has announced that it will conduct a prize essay contest in industrial economics, offering a prize of $1000 for the best monograph on any of the following subjects:

A practicable plan for representation of workers in determining conditions of work and for prevention of industrial disputes.

The major causes of unemployment and how to minimize them.

How can efficiency of workers be so increased as to make high wage rates economically practicable?

Should the state interfere in the determination of wage rates?

Should rates of wages be definitely based on the cost of living?

How can present systems of wage payments be so perfected and supplemented as to be most conducive to individual efficiency and to the contentment of workers?

The closed union shop *versus* the open shop: Their social and economic value compared.

Should trade unions and employers' associations be made legally responsible?

The committee of award is composed of Frederick P. Fish, of Fish, Richardson & Neave, Boston, chairman of the National Industrial Conference board; Dr. Jacob Gould Schurman, president Cornell university, Ithaca, N. Y., and Henry R. Towne, chairman Yale & Towne Mfg. Co., New York City. Manuscripts must be mailed on or before July 1 and further details of the contest may be obtained by addressing the board at 15 Beacon street, Boston.

Nathan A. Smyth, assistant federal director of the United States employment service, says the service placed 2,400,000 workers up to Jan. 1, and is now finding jobs for 90,000 to 100,000 weekly, at cost of $1.33 for each job.

When the armistice was signed about 86,000 men and women were engaged in war work in the Du Pont munition plants. Since that time more than 60,000 of these workers have gone back into peace industries.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

SECRETARY WILLIAM S. ROGERS, who was admitted to partnership in Rogers, Brown & Co., Buffalo, and given the title of secretary, is a son of William A. Rogers, of Buffalo, the senior partner, and was born June 20, 1880, in Cincinnati. He was graduated from Yale in 1910 and was employed in various departments of the company until 1916, when as a member of Troop I, First New York cavalry, national guard, he spent six months on the Texas border. When the United States entered the war, he entered the second reserve officers' training camp at Fort Niagara and was appointed a first lieutenant of field artillery in November, 1917. He was promoted to a captaincy in September, 1918, while instructor at the school of fire for field artillery at Fort Sill, Okla. He was honorably discharged from the service last December.

Joseph H. Conlisk has become affiliated with the La Salle Steel Co., Chicago.

A. S. McQueen has been elected vice president in charge of sales of the Pittsburgh & Bessemer Coal Co., Pittsburgh.

J. J. Harty, president of the Canadian Locomotive Co., Kingston, Ont., has gone to England with a view to obtaining additional orders in the European market.

J. B. McMullin, president of the Western Mfg. Co., Oskaloosa, Iowa, had the duties of Acting Manager L. W. McOmber added to his own, when the latter resigned.

C. L. Perry has resigned his position as general manager of the Equitable Coke Co., to become president of the Midvale Doshen Coal Co., Cleveland.

John F. Nealis, who recently received his discharge from the aero observers' branch of the service, now is associated with the Powdered Coal Engineering & Equipment Co., Chicago, as advisory engineer. Mr. Nealis formerly had charge of research work for the United States Steel Corp. Lester E. Armstrong has accepted a similar position with the company. Prior to his service in the air branch of the army, Mr. Armstrong was associated with the Babcock & Wilcox Co.

Maj. Ainslie A. Gray has received his discharge from the ordnance department and has opened offices for a general advertising business at 1547 Marquette building, Chicago, under the firm name of A. A. Gray & Co.

W. V. C. Jackson, formerly of the Metal Products Co., and Briscoe Motor Corp., has assumed duties as vice president and general manager of the Auto Body Co., of Lansing, Mich.

Frederick H. Lewis has resigned as manager of orders of the Midvale Steel & Ordnance Co. and the Cambria Steel Co., Philadelphia, to become assistant to F. E. Jamieson of the Jones & Laughlin Steel Co., Pittsburgh.

Mark Workman, president of the Dominion Iron & Steel Corp., Sydney, N. S., has sailed for Europe. He will confer with certain interests with respect to the reconstruction program and will look into new business opportunities.

Daniel W. Tower, president of the Grand Rapids Brass Co., Grand Rapids, Mich., and founder of the business in 1882, has retired from active business life, selling his stock in the company. He is spending the winter at St. Petersburg, Fla.

J. M. Taylor, secretary of the National Founders association, is about to leave a Chicago hospital where he has been several weeks recovering from the effects of a fracture of the kneecap sustained in a fall against a street curb in the early winter.

James M. Atchison, of the H. C. Frick Coke Co., started Feb. 1 for his annual winter vacation in Florida. On the evening of Jan. 30 he was tended a farewell dinner at the Duquesne club, Pittsburgh, by his associates and some of his personal friends.

C. G. Dickinson has been transferred from New York where he was scrap supervisor for the ordnance department to the office of the director of sales in Washington as assistant sales manager of the raw materials and scrap division.

S. P. Adams, who has had considerable experience in the selling of fire brick, has been placed in charge of the recently opened Chicago office of the Ashland Fire Brick Co., Ashland, Ky. Headquarters are at 29 South La Salle street, Chicago.

J. C. Conn has recently become connected with the H. C. Weller Co., Jacksonville, Fla., dealer in relaying rails, railway equipment, locomotives and scrap iron, in the capacity of general sales manager of the entire sales department.

Joseph W. Fall, formerly of Nashville, Tenn., with an extensive acquaintance in the hardware trade, has become identified with the Thomas-Ogilvie Hardware Co., Shreveport, La., as vice president and sales manager. He succeeds B. F. Kahl, who resigned to remove to St. Louis.

A. E. Hodgkins, formerly general manager of the Cheever Iron Ore Co.'s properties located near Port Henry, N. Y., has been appointed to the newly created office of comptroller of the Witherbee, Sherman & Co., Inc., Port Henry, N. Y., iron ore operators.

W. H. Raisbeck has been placed in charge of the Detroit office at 447 Book building, of H. Boker & Co. Inc., 101-103 Duane street, New York. He will handle their complete line of tool steel and steel specialties and expects to open a new warehouse with a complete stock in the near future.

Clarence W. Howard, president of the Commonwealth Steel Co., St. Louis, has been made chairman of the committee which will handle the details of the convention to be held at the Hotel Statler, St. Louis, Feb. 21 to 23, inclusive, of the National Society for Vocational Education.

Lewis D. McClaren, who has served the United States navy department since war was declared in the capacity of metallurgist and chief of steel production and inspection, Chicago district, resigned Feb. 1, to become connected with the Chicago office of Rogers, Brown & Co., as sales representative. Mr. McClaren was for many years in the inspection and metallurgical departments of the Illinois Steel Co. at its south works plant.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

W. H. CAMERON, general manager of the National Safety Council, Chicago, and its predecessor, the National Council for Industrial Safety, since its inception, has resigned his position and has been made manager of the industrial relations division of the Eastman Kodak Co. at Rochester, N. Y. His successor has not been appointed. Development of the National Safety Council from a modest beginning to its present wide range of activities has been entirely under the direction of Mr. Cameron, associated with the directors of the council, and is a monument to his executive strength. For the year 1915-1916 he served the National Safety Council as secretary and treasurer.

F. H. Finke has resigned as purchasing agent of the Lenoir Car Works, the Railway Fuel Co., and the Gadsden Car Works, Richmond, Va., to accept service with the United States railroad administration. He has been succeeded by W. R. Colklesser.

Richard T. Browne Jr., has joined the sales force of the Youngstown Sheet & Tube Co., Youngstown, O., at its Pittsburgh office. Percy O. Eisenbeis has been transferred from the sales office at Youngstown, to the St. Louis district sales office at 1139 Olive street.

J. H. Van Campen, formerly with the Bethlehem Steel Co., but who became identified with the Weirton Steel Co., Weirton, W. Va., as chief draftsman some time ago, has resigned to become steel plant engineer of the Timken Roller Bearing Co., Canton, O.

John M. Jamison, of the Jamison Coal & Coke Co., Greensburg, Pa., is being mentioned as a possible candidate on the republican ticket for the vacancy in congress from the Westmoreland-Butler district caused by the death of Representative Edward E. Robbins.

John C. Wallace Jr., purchasing agent of the Pacific Coast Steel Co., San Francisco, has resigned to enter business for himself, after 10 years of association with the iron and steel trade on the Pacific coast. After March 1, he will be located in Pittsburgh, and will conduct a sales business in iron and steel products.

Ben Bosler, superintendent of the mechanical department of the Cambria Steel Co., Johnstown, Pa., had his right leg crushed by the overturning of an automobile, Jan. 30, and the limb had to be amputated. Mr. Bosler was riding in the car of John Ogden, the company's general superintendent.

W. H. Eshleman who has been in charge of the Sharon Steel Hoop Co. plate mill for several years has been named superintendent of the plate mills of the Brier Hill Steel Co., Youngstown, O., to succeed F. P. Pyle, resigned. He at one time was affiliated with the Republic Iron & Steel Co., that city.

D. G. Clark has left E. S. Jackman & Co., Pittsburgh, agents for the tool and die steels made by the Firth-Sterling Steel Co., Pittsburgh. He and four of E. S. Jackman & Co.'s salesmen, H. I. Moore, H. P. Jaeger, A. E. Barker and A. Mattson, will sell for the Firth-Sterling Steel Co., in New York and New England.

J. M. Hilbish has become associated with the district office of the Jones & Laughlin Steel Co., at Cleveland, in the capacity of a salesman. Mr. Hilbish formerly was connected with the Carnegie Steel Co., at its Homestead works and subsequently for six years was with Joseph T. Ryerson & Son, Chicago.

W. M. Jones has been made eastern sales representative of the Torbensen Axle Co., Cleveland, manufacturer of internal gear drive truck axles. For the past nine years, Mr. Jones has been connected with the Sheldon Axle & Spring Co., in the capacity of sales engineer, having been at one time assistant engineer for that company.

B. F. Geyer, who has been general sales manager of the Wayne Oil Tank & Pump Co., Fort Wayne, Ind., has been promoted to be vice president and general manager. E. J. Gallmeyer succeeds him as general sales manager. He formerly was manager of the Memphis district for the company.

C. E. Perin and S. M. Marshall, 2 Rector street, New York City, consulting engineers, are at present in Sakchi, India, in connection with improvements at the plant of the Tata Iron & Steel Co. K. E. Humbert, associated with them, has just returned from India by way of China and Japan.

Frank E. McIntyre, general superintendent of the National Steel Foundries, a subsidiary of the National Brake & Electric Co., Milwaukee, resigned Feb. 1 to become vice president and general manager of the Hercules Steel Casting Co., a new electric steel foundry interest of Milwaukee.

Nathaniel Curry, who has been president of the Canadian Car & Foundry Co., Montreal, Que., was made chairman of the board of directors at the company's recent annual meeting. He was succeeded as president by W. W. Butler, whose appointment was noted in the Feb. 6 issue of THE IRON TRADE REVIEW.

R. F. Jordan, a graduate engineer, has been placed in charge of the Boston branch at 79 Milk street, opened by the Sterling Wheelbarrow Co., Milwaukee. Mr. Jordan has spent a year at the plant to familiarize himself with the company's product. The Sterling company now has branches in Cleveland, Detroit, New York, Chicago and Boston.

Alexander D. Darragh, resident representative of the Carnegie Steel Co. at Albany, N. Y., has joined the structural and bar division of the sales department of the Consolidated Steel Corp., 165 Broadway, New York. During the past year and one-half, Mr. Darragh has served in the quartermaster's department at Governor's Island, New York, with the rank of first lieutenant.

A. A. Serva, who for the past 24 years has been connected with the General Electric Co.'s plant at Ft. Wayne, Ind., and recently has served in an executive capacity, has returned to his former home town of Canton, O., to become associated in an official position with Ed. A. Langenbach, president and general manager of the Berger Mfg. Co., chairman of the board of directors of the United Alloy Steel Corp., and prominently identified with other manufacturing establishments.

Men of Machinery Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

WALTER M. SPAULDING, president of the Graton & Knight Mfg. Co., Worcester, Mass., has completed a half century of service with the company. He entered the employ of the firm in 1869, as a bookkeeper, and gradually was given responsibility and recognition as an official, until he had become vice president, secretary and general manager. In 1909, on the death of Joseph A. Knight, he became president and general manager, which offices he now holds. The directors celebrated the event by giving Mr. Spaulding a luncheon at the Bancroft hotel, in Worcester.

Frank A. Ball, vice president of the L. S. Starrett Co., Athol, Mass., has been elected president of the Athol board of trade.

Clarence S. Willard, foreman at the Graton & Knight Mfg. Co., Worcester, Mass., has been promoted to manager of the St. Louis branch of the company.

W. C. Werley has left the Cleveland Duplex Machinery Co., Cleveland, and Richard Goedecke succeeds him as sales manager.

Evan F. Jones, treasurer and general manager of the Morgan Spring Co., Worcester, Mass., is planning a pleasure trip to South America.

Henry D. Sharpe, president of the Brown & Sharpe Mfg. Co., Providence, R. I., has been elected a director and vice president of the Providence Journal Co.

A. W. Nichols has been placed in charge of an office in the Western Indemnity building, Dallas, Tex., opened up by Westinghouse, Church, Kerr & Co., 37 Wall street, New York.

Theodore R. Hermanson, formerly connected with the Harrison works of the Worthington Machinery Corp., has become associated as works manager with the Epping-Carpenter Pump Co., Pittsburgh.

Frank H. C. Coppus, president of the Coppus Engineering & Equipment Co., Worcester, Mass., sailed from New York for France, Feb. 15, on the steamship Espagne, on a business mission to the war stricken countries.

Edward W. Dodge, who for many years was connected with the Norton Co., Worcester, Mass., serving as sales manager a large part of the time, has been appointed general sales and works manager of the Star Corundum Wheel Co., Detroit.

J. G. Osgood, who resigned recently as manager of pneumatic tool sales for the Chicago Pneumatic Tool Co., Chicago, after a service of 12 years in its sales organization, has been made general sales and service manager of the Keller Pneumatic Tool Co., Chicago.

Herbert C. Alexander, for 20 years shop superintendent of the J. W. Bishop Co., Worcester, Mass., has resigned to become production manager for Cregg & Son, Nashua, N. H., where he will begin his duties Feb. 17. He will be succeeded by James MacFadyen.

John W. Sadler has been made supervisor of the tool and machine shop of the David Lupton's Sons Co., Philadelphia. He has been a tool engineer in the company's ordnance department. Theodore F. Oechole, former supervisor of the tool and machine shop, was promoted to be consulting engineer.

Robert G. Hayssen, Milwaukee, has been elected president and general manager of the Sterling Motor Truck Co., West Allis, Wis., suburb of Milwaukee, to succeed Victor L. Brown, retired. E. M. Sternberg, founder of the company, continues as vice president. Frank Luick, works manager, succeeds Mr. Hayssen as secretary and treasurer.

E. R. Spencer, who has been connected with the ordnance plant at Neville island and prior to that in the Pittsburgh office of the Allis-Chalmers Mfg. Co., is now with the Thomas Spacing Machine Co., Pittsburgh, in the capacity of sales engineer. H. P. Pope, until recently in the machine tool department of the Neville island ordnance plant and previously with the Savage Arms Corp., Sharon, Pa., has become affiliated with the Thomas Spacing Co., in charge of one of its manufacturing departments.

John M. Balliet, Appleton, Wis., was recently promoted from vice president to president and general manager of the Reliance Motor Truck Co., Appleton, Wis. M. Weyenberg succeeds him as vice president. The change was made necessary by the retirement of Ira L. Miller, Racine, Wis., as president, manager and director.

Wyman Eaton has been appointed chief engineer for Freyn, Brassert & Co., engineers, Chicago, taking effect Feb. 15. Mr. Eaton formerly was connected with the engineering offices of Julian Kennedy, the Youngstown Sheet & Tube Co., the William Tod Co. and McKinney Steel Co., and recently resigned as engineer in charge of the rolling mill work of the Mesta Machine Co., Pittsburgh.

Hon. Marcus A. Coolidge, president of the Fitchburg Machine Works, Fitchburg, Mass., has been appointed an American commissioner to Poland by President Wilson. He was in Paris at the time and left that city, Feb. 9, for Poland. He went to Europe, Jan. 2, with Bernard M. Baruch and Vance McCormick, to confer on trade relations with foreign countries, and was expected home by this time, when a cable announced his going to Poland.

H. W. Clarke has been appointed advertising manager for the Chicago Pneumatic Tool Co., Chicago. Mr. Clark has been identified with the engineering advertising field for a number of years. Until Dec. 15 he was affiliated with the advertising service department of the McGraw Hill Co. at Chicago, and prior to his connection with these publications he was associated for eight years with the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., part of the time as a member of the sales and publicity department and subsequently as western publicity representative, with headquarters at Chicago.

Percy M. Brotherhood, vice president of Manning, Maxwell & Moore, Inc., 119 West Fortieth street, New York City, and general manager of its machine tool department, sailed for Europe Feb. 8. He will visit England, France, Belgium and Italy, and possibly Spain. Mr. Brotherhood is expected to return to this country early in April. He will look carefully into the railroad and general industrial conditions of these countries in an effort to determine what the requirements will be, how soon they expect to resume manufacturing on a normal basis and what the possibilities are for the extension of American business.

:: Here and There in Industry ::

INCORPORATED at $20,000, the Duplex Machinery Co., of Cleveland, is now the Cleveland Duplex Machinery Co., Bradley building, 1224 West Sixth street. G. J. Hawkey is president and Richard Goedecke has succeeded W. C. Werley as sales manager. The latter has left the company.

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THE Detroit Iron & Steel Co., Detroit, Mich., has awarded a contract to Freyn, Brassert & Co., engineers, Chicago, for two Brassert gas washing and drying units for its Detroit blast furnaces. This will make 68 stacks equipped with this device.

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THE Galion Metallic Vault Co., Galion, O., recently doubled its capitalization to $400,000. It is not expecting to build at the present time, but will require some additional equipment in the line of heavy shears, rolls and brake, all to be equipped with electric motors.

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THE Pittsburgh Galvanizing Co., has been refused a permit to operate a galvanizing plant in the building which it is erecting in Wilkinsburg, Pa. Residents claimed that the acids used would create obnoxious fumes and the borough council refused the permit because of this protest. The company has not decided as to what future course to pursue in the matter.

* * *

THROUGH its New York office, 52 Vanderbilt avenue, and its Philadelphia office, Pennsylvania building, the Matlack Coal & Iron Corp., is transacting considerable business in South America. Large shipments of coal and smelter coke as well as pig iron, iron and steel products, etc., are being made. The corporation is represented by resident agents in Montevideo, Rio de Janeiro, Buenos Aires, and also in Genoa and Madrid.

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ANNOUNCEMENT has been made by the Northwest Steel Co., Portland, Oreg., of its retirement from the structural steel field. This business is taken over by the Northwest Bridge & Iron Co., which company is headed by W. H. Cullers. The Northwest Steel Co. will confine its activities to shipbuilding. The Northwest Bridge & Iron Co. will build a new plant when a suitable site is obtained.

* * *

PUBLISHED by and for the employes of the Interstate Iron & Steel Co., Chicago, vol. 1, No. 1 of *The Interstate Alloy*, the company's new house organ, is just off the press. Its purpose is to give greater interest on the part of employes of the four plants operated by this company at East Chicago, Grand Crossing, South Chicago, and Marion, O. The initial number is handsomely printed on coated stock in two colors.

* * *

THE war department is to establish a plant in Springfield, Mass., for the manufacture of 50-caliber Browning machine guns. It will utilize buildings already under its control, probably those of the New England Westinghouse Co., which has been turning out Browning guns. All tools, gages and jigs used in the making of these guns will be collected and stored for use in case of an emergency.

* * *

W. VIRGIL SPAULDING, secretary and assistant treasurer of the Graton & Knight Mfg. Co., Worcester, Mass., says there is no truth in the reports that the company is to engage in the manufacture of shoes. For several months an addition has been under construction. This is to be used as a laboratory, the making of cement and for storage, and perhaps as an extension of some of the other manufacturing departments, according to Mr. Spaulding.

* * *

ON Jan. 20, the Minneapolis Steel & Machinery Co., St. Paul, Minn., closed a contract with the government for the construction of six steel barges at a cost of $390,000. These comprise a third of the fleet of 18 barges which the United States will operate between the cities of Duluth and Minneapolis and St. Louis to test the practicability of the upper Mississippi river as a medium of transportation. The first will be launched about June 1, in the St. Croix river and towed into the Mississippi.

* * *

QUANTITY production of farm tractors will be undertaken at once by the Trenam Tractor Co., Stevens Point, Wis., which a year ago purchased the plant and business of The Central City Iron Works from C. A. Cook. Since that time it has been perfecting its tractor design and at the same time has been conducting the foundry and machine shop on general work. Reports presented at the annual meeting showed that a business of $60,000 was transacted as a commercial foundry during the year. Materials and parts for 1000 tractors are being delivered to the works for the 1919 production. J. J. Trenam is president of the company.

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OPERATIONS now are being carried forward by the Maynard Electric Steel Castings Co., in its new foundry in Layton Park, Milwaukee. A production of between 500 and 600 tons of steel castings monthly has been reached. The melting equipment includes a 3-ton Moore electric furnace and a ¾-ton Rennerfelt electric unit. A complete layout of foundry equipment has been provided. The company is producing high grade electric steel castings. The business originally was established in a small way in 1912, and in 1917 its controlling interests were taken over by Sylvester J. Wabiszewski with Frank Wabiszewski as manager. Since that time the business has gradually increased and at the present time the company is enjoying a good demand for its output.

* * *

THE opening of the new foundry of the Long & Alstatter Co., construction for the past few months is set for about the middle of March. This foundry will be one of the latest developments of its kind, and will be able to melt 40 tons or better per hour. Installation of machinery is now going on, and will be completed within a few days. The foundry will contain six traveling cranes, from five to 30 tons capacity, and a yard runway which will be used for handling raw materials, will be equipped with a magnet and grab buckets. In conjunction with the opening of the new foundry, the company has purchased the old plant of the Neale & Urban Safe Works, Hamilton, which it is converting into a plant for the manufacture of agricultural implements. Very little new equipment will be needed in this plant, as old equipment will be used.

Obituaries

HOWARD P. EELLS, chairman of the Bucyrus Co., South Milwaukee, manufacturer of excavating machinery, and well known in the industrial and philanthropic life of Cleveland, died at Pasadena, Cal., in a hospital Tuesday, Feb. 11. A short time after arriving in the city from Cleveland, he became ill. He had not fully recovered from the effects of an automobile accident in July, 1917, but had been at his office in Cleveland up to the time of his departure for California, Feb. 7. Mr. Eells, for several years, was identified in an official capacity with the National Metal Trades association, serving as president from 1909 to 1910 and as treasurer for a number of years. He always was intimately associated and interested in the direction of the affairs of that organization. Mr. Eells was born in Cleveland in 1855 and was graduated from Hamilton college in 1876 and from Harvard one year later. For many years, he served as president of the Bucyrus Co., South Milwaukee, which built three-fourths of the excavating machinery used in digging the Panama canal. Later he became chairman of the board of directors, and he occupied this position up to the time of his death. He also was president of the Atchison & Eastern Bridge Co., the Dolomite Products Co., and the Howard Realty Co., all of Cleveland. He was a director of the Sandusky Cement Co., Sandusky, O., and was prominently identified with several other industries and with Cleveland financial institutions. He was a trustee of the Western Reserve university and of the Cleveland School of Art, and his connections with various religious and philanthropic institutions were numerous. For many years, he held the presidency of the Cleveland branch of the Archeological Institute of America. His son, Dan P. Eells, is treasurer of the Bucyrus Co.

A. H. Hunter of the Atlas Crucible Steel Co., Dunkirk, N. Y., an ordnance engineer, died recently after a short illness.

William G. Willard, president of the Eureka Steel Range Co., O'Fallon, Ill., is dead at his home in that place. His first work was as canal boy on the Erie canal.

George M. Donaldson, manager of the special sales department and assistant office manager of the Reed & Prince Mfg. Co., Worcester, Mass., died at a hospital in that city, Feb. 4, aged 44 years. He had been connected with the company more than 20 years.

Luther P. Friestedt, said to have been the inventor of steel sheet piling, died Feb. 5 at Los Angeles, burial being in Chicago. He was a director of the Columbia Tool Steel Co., at Chicago Heights, and the Friestedt Underpinning Co. of New York.

David Rogers, pioneer boiler, tank and furnace builder, died at his home

HOWARD P. EELLS

in Pittsburgh recently aged 80 years. He erected several of the first blast furnaces in this country, notably those in Birmingham, Ala. He was born in Pittsburgh and was a veteran of the Civil war.

A. M. Crane, formerly general manager of sales for the Illinois Steel Co. and the Federal Steel Co., before the formation of the United States Steel Corp., died Feb. 10 at his home in Chicago, of pneumonia. He had not been connected with the steel industry for several years.

James A. Allen, who established the Allen Iron Works Co., Adams, Mass., in 1870 and later operated a foundry and machine shop, died in that town, Feb. 5, aged 90 years. He was an expert mechanic and invented a number of machines used in cotton mills. The business is in charge of his son, John H. Allen.

William W. Hayward, aged 62, secretary and treasurer of the Butler Drawbar Attachment Co., Cleveland, died at his home in that city, Feb. 12, from pneumonia. Mr. Hayward for several years was secretary and treasurer of the Cleveland City Forge & Iron Co., Cleveland, and was identified with many social, commercial and civic organizations.

Frederick L. Hickock, president of the Reliance Gauge Column Co., Cleveland, died Feb. 16, at his home in East Cleveland, after a week's illness, at the age of 36. For five years after Mr. Hickock was graduated from Case School of Applied Science, in 1905, he was connected with the Ingersoll Milling Machine Co., Rockford, Ill., and he was associate editor of *Machinery* for four years.

Jack Liechman, formerly connected with the American Locomotive Co. at its Schenectady works, and later superintendent of foundries for the Rathbone, Sard Co., at Aurora, Ill., recently died as a result of an attack of influenza. He was succeeded by H. S. Nelson as superintendent, E. P. Calkins being made assistant superintendent. Both are transferred from the Albany foundries to Aurora.

David Oliver Holbrook, an authority on natural gas problems and recently head of the natural gas division of the fuel administration, died suddenly at his home in Pittsburgh, late Saturday night, of acute indigestion. Mr. Holbrook was born in Onawa, Ia., in 1872. He came to Pittsburgh in 1893 and after a brief experience in reportorial work on the old *Pittsburgh Times,* he went to Uniontown, Pa., to accept a position with a coke company. Subsequently he became connected with the Oliver & Snyder Steel Co., being attached to the office of the superintendent of the Hainsworth plant of that company. He advanced to the position of purchasing agent, resigning in 1899, when the Hainsworth plant was absorbed by the American Steel & Wire Co. Mr. Holbrook then became identified with the Pennsylvania Malleable Co. and the Central Car Wheel Co. In 1906, he severed these connections to organize the Dayton Pipe Coupling Co. and the Dayton Pneumatic Tool Co., becoming vice president of both companies. He was still connected with these companies at the time of his death and also was secretary and treasurer of the American Natural Gas association and president of the Natural Gas Supply Men's association.

Tentative Tax Return is Permissible

One-Quarter of Estimated Tax Must be Paid by March 15 and Amended Statement May be Filed Later—Time Limit in New Law May Prove Hardship —Measure Now Awaits President's Signature

INCOME TAX DEPARTMENT
Conducted by
WOLFF, MILLER & CO.,
Certified Public Accountants
1328 Broadway, New York City

ALL the provisions of the new revenue act as agreed upon by their conferees, have been accepted by the house and senate. All that is necessary now to put this law on the statute books is the signature of President Wilson.

As the new law contemplates raising $6,000,000,000 in taxes for 1918, as against only about half that amount for the previous year, the taxpayer is well aware that he is expected to contribute a larger amount than ever before. However, the additional levy is not made uniformly, but according to a graduated scale. Just how this scale operates with respect to certain incomes of individuals, including partners and personal service corporations, is shown by the following table, which also gives by way of comparison the taxes for last year as well as those for next year. The exemption of $2000 has been deducted from the income in each case.

	Old law	—New law—	
Net income	1917	1918	1919
$5000.....	$80	$180	$120
10,000.....	355	830	590
20,000.....	1180	2630	1990
40,000.....	3580	7730	6290
60,000.....	6780	14,830	12,590
80,000.....	10,980	23,930	20,890
100,000.....	16,180	35,030	31,190
150,000.....	31,680	67,030	61,190
200,000.....	49,180	101,030	93,190
300,000.....	92,680	173,030	161,190
500,000.....	192,680	323,030	303,190
1,000,000.....	475,180	694,030	657,190

Particular attention is called to the fact that the taxes for next year will not be reduced materially from those of this year. It is the general impression among business men that since $4,000,000,000 of taxes are to be levied for 1919, the rates for that year will be one-third less than this year. As a matter of fact, the rates for individuals, partnerships and personal service corporations will be only about 10 per cent less. Corporations will have their taxes reduced next year to a greater extent than shown in the above table, on account of their taxes for this year being particularly drastic, especially in those cases where the 80 per cent war profits feature applies. Instead of 30 per cent and 65 per cent excess profits taxes, the rates for 1919 will be 20 per cent and 40 per cent. The 80 per cent feature will be eliminated for the average company, as it will apply only to certain corporations who continue to work under government war contracts.

It is regrettable that the bill provides that returns must be filed on or before March 15, 1919, when one-quarter of the tax is due. This will entail undue hardship on many taxpayers, particularly corporations. In the short time remaining many taxpayers, particularly those who have given the matter no thought up to now, may not be able to prepare their returns properly. Regulations of the treasury department permit the filing of a tentative return, if accompanied by a remittance for one-quarter of the estimated tax. An amended return may be filed subsequently. This was the opinion of Mark Eisner, collector of internal revenue for the second district, New York, when he responded to a question by a member of the New York State Society of Certified Public Accountants at its last meeting, Feb. 10, in New York city. It is hoped that such preliminary and amended returns will be rendered unnecessary by a ruling of the treasury department. The various certified public accountants are doing their share towards endeavoring to obtain more time, in order to do full justice to their clients. The writer would urge readers of THE IRON TRADE REVIEW, who find three weeks insufficient for the closing of their books, the preparation of statements of financial condition and progress, as well as the filling out of necessary blanks, to communicate with the proper authorities in Washington and request that extensions of time be granted.

Questions and Answers

QUESTION: Can you advise us how to arrive at "a reasonable deduction for amortization of such part of the cost as has been borne by the taxpayer of buildings, machinery, equipment, or other facilities, constructed, erected, installed or acquired, on or after April 6, 1917, for the production of articles contributing to the prosecution of the present war. . . .," as shown in Article A-8, Section 234, of 1918 revenue bill.

ANSWER: The amount of the deduction depends largely upon the final determinations made by the government representatives in their adjustments of the construction, operation and dismantling or reconverting of the various plants manufacturing war necessities. It would seem to us that this proposition resolves itself down to these two phases:

Where the machinery employed is of such a character as to render it useless for peace industries.

Where the plant and machinery can be reconverted for the manufacture of peace necessities.

In the first case we would say that the amortization under this paragraph would be the difference between the cost of the plant and machinery and its scrap value.

In the second case, the amortization would be the difference between the original cost and the cost to reproduce new, less depreciation, taking prewar prices. This would include an allowance for "rearrangement expenses," i. e., the cost of converting the plant from a peace basis to a war basis and vice versa.

Of course, it is impossible at the present time to answer your question except as a matter of opinion, as practically no final determinations

have been made. The government engineers and accountants are at present working along these lines in collaboration with the war industries' engineers and accountants.

It is impossible to answer your question as to what percentage of cost you would be allowed to charge off, as if there were final settlements to serve as a guide, the percentage would vary in different plants. We know of one case, for instance, where the government was obliged to take over the plant, and where it made an offer of 25 per cent of original cost to sell it back to the owners.

In this connection, where the government bears the expense of amortization, we believe the taxpayer cannot claim it as a deduction. Paragraph 8, Section 234, reads: "At any time within three years after the termination of the present war the commissioner may, and, at the request of the taxpayer shall, re-examine the return, and if he finds as a result of an appraisal or from other evidence that the deduction originally allowed was incorrect, the taxes imposed by this title and Title III for the year or years affected shall be redetermined; and the amount of such tax due upon such redetermination, if any, shall be paid upon notice and demand by the collector, or the amount of tax overpaid, if any, shall be credited or refunded to the taxpayer in accordance with provisions of Section 252."

It appears, therefore, that whatever is done in this connection is subject to ultimate review by the treasury department.

The following answer is supplementary to what we stated in the last issue of THE IRON TRADE REVIEW *with regard to United States citizens doing business in Canada, and subject to taxes in the dominion:*

As stated in the last issue, there is no provision in the pending act which would exempt you from taxation by the United States. However, a citizen of the United States will receive credit against his income tax for the amount of any income or excess profits taxes paid or accrued during the year to any foreign country or any possession of the United States, upon income derived from sources in that country. If you are a partnership, your members are allowed their proportionate share of such taxes paid by the firm. A corporation, like an individual, is allowed credit for any income and excess profits taxes paid to a foreign country or possession of the United States. The operation of this is that where the taxes paid the foreign country are greater than the calculation under the new revenue act, there will be no tax payable to the United States. On the other hand, where the taxes payable to the United States exceed those paid to the foreign country, the United States will receive the difference between what was paid to the foreign country and the amount of taxes at the United States rates.

The largest boiler heads ever flanged in this or any other country were successfully made at the Lukens Steel Co. plant, Coatesville, Pa., recently. A number of heads 1⅛-inch thick to 183 inches outside diameter, with a depth of flange of 11 inches were flanged. These are to be used for Scotch marine boilers, which heretofore it was necessary to make up in two pieces or more, requiring more seams and considerable riveting. The advantage to boilermakers of flanging heads in single pieces, it is believed, will be very great.

A Word With the Editor

Hasten the Readjustment

Jan. 30, 1919.

THE IRON TRADE REVIEW,
Cleveland, O.

Subject: "Scrap the War Machine."

Dear Sirs:

Your editorial under this caption seems to fit the case exactly. The war is over—let's not mark time but let's start an offensive in trade in advance of our competitors in other countries. The manufacturers of this country will be sufficiently handicapped in dealing with intellectual labor, which labor demands a living wage, without being handicapped by an additional delay in starting the offensive in new business.

The unfortunate thing is that some of the government contracts require a certain line of procedure. We have found, however, that in our case, when we were ordered to cease operations as fast as we cleaned up each operation we tore down the machine, moved it out in the yard and began preparation for the manufacture of automobiles. This act of ours was not criticized by the proper war authorities when they found we were acting in good faith, and when they were promptly advised and able to check everything we did. We believe the war boards will co-operate with all manufacturers for a speedy return to normal business.

Very truly,
The Templar Motors Corp.,
M. F. BRAMLEY,
Pres. and Gen'l Manager.

Machinery Dealer's Viewpoint

Feb. 11, 1919.

IRON TRADE REVIEW,
Cleveland, O.

Gentlemen:

We are taking the liberty of addressing you on an article appearing on page 356 of the Feb. 6th issue of THE IRON TRADE REVIEW. We should have said articles, as both editorials, one covering "Action Wanted on Government's Tools" and the other "The Used War Machine Justified" seem to have been written by a man who was cognizant of the thought and even the pulse beat of the dealers in machine tools, either new or used.

Our vocabulary seems to fail us as we strive for words adequately to express our approval of these articles and a great deal of credit should go to the man who wrote them and to the medium that published them. It is such insight as this as endears your paper to its readers.

We would respectfully ask permission to copy in our Machine Anniversary booklet the article on "Used War Machine Justified."

Trusting you will grant us this permission and with kindest personal regards from the writer, we are

Respectfully yours,
The Cleveland Duplex Machinery Company,
By G. J. Hawkey, President.

What Reconstruction Means

Chicago, Feb. 14, 1919.

Editor IRON TRADE REVIEW,
Cleveland, O.

My Dear Sir:

I have read with pleasure the article in your current issue written by Mr. G. Herbert Jones, vice president Inland Steel Co., on the subject of "What Does Reconstruction Mean?" and would be very glad if this article could be given a wider publication as to my mind the thoughts expressed are along the right lines.

Yours very truly,
William H. Spear,
President William H. Spear Company.

Iron and Steel Financial News

Up-to-the-Minute Fact and Comment Collected and Sifted For Busy Readers

Big National Financing Problems Loom

WITH the $6,000,000,000 revenue measure lacking only the signature of President Wilson to make it a law, one half of the government's financial program may now be said to be reduced to a tangible form, while the other half, involving the problem of meeting the remainder of the enormous public expense incident to the war, remains enveloped in a state of uncertainty. Secretary Glass is now engaged in a period of intensive activity in preparation for the loan. Early last week he submitted to congress a draft of a bill which would raise the limit of bonds authorized but unissued from $5,000,000,000 to $10,000,000,000 and confer upon the treasury department the authority to fix the terms and conditions of the Victory Liberty loan to be floated in April. Friday and Saturday Mr. Glass spent in New York conferring with bankers and speechmaking before liberty loan and war savings committees, at the conclusion of which he said he could make no statement regarding the terms of the forthcoming loan.

In fact no such announcement may be expected until shortly before the campaign opens, providing congress can be prevailed upon to clothe Mr. Glass with the unprecedented, and what some congressmen believe unjustified, powers he requests. However, in view of the circumstances, it is difficult to criticize Mr. Glass for taking the stand he has. He points out that it would be highly impracticable in view of the state of business to fix the details of the loan so far in advance of the flotation, while if the matter is held over until the next session of congress, assuming an extra session is to be called, its organization would not be effected in sufficient time to take up the loan problem. Bankers, generally, agree with Mr. Glass in his contention that it would be a mistake to determine the conditions of the Victory Liberty bonds at this time.

After all, general conditions as they exist at the time of the campaign will determine the success or failure of the loan at a given set of terms. Mr. Glass says that taking into consideration general business conditions as they stand today, with stagnation of trade more or less prevalent as industry undergoes the travail of the readjustment period, that he would have to fix a much higher rate of interest than he thinks may be actually necessary to fix in April, when he believes business improvement will be evident.

One thing stands out in the Glass bill and in his statement before congress in support of it, and that is that $6,000,000,000 loan will not mark the finish of government borrowing activities this year. He says that he has not been able to obtain estimates from the war department and other government branches of their probable expenditure this year. Yet the heavy outlay that will result when appropriate legislation has been passed validating informal war contracts, and many other forms of expenditure, including the cost of maintaining the army abroad; shipping board expenses; the navy program; and the pending $1,000,000,000 appropriation to guarantee the $2.26 wheat price, all combine to prevent any anticipation of an early curtailment in cash disbursements by the government. The treasury's floating debt at the present is nearly $5,000,000,000 and is increasing at the rate of $1,400,000,000 monthly.

Figures submitted to congress by Secretary Glass showing that exclusive of the public debt the expenditures of the government from March 1, 1917, to Jan. 31, 1919, covering approximately the date of entry into the war to date, have aggregated $26,620,334,803, while receipts have totaled $6,117,762,294. Of the total disbursements $7,975,267,247 represents loans to foreign governments. The government allotted for the first four Liberty loans subscriptions aggregating $16,977,488,000.

Mr. McAdoo estimated the total expenditures for the fiscal year ending June 30, 1919, at $18,000,000,000. Expenditures for the first seven months of the year have amounted to $12,594,498,537 and if the outgo continues at the present rate the McAdoo estimate will be exceeded by at least $2,000,000,000.

Confronted by this situation Mr. Glass has a number of money raising expedients in mind. He wants power to do these three things: To issue approximately $10,000,000,000 in new definitive bonds; the right to increase the gross volume of treasury certificates of indebtedness, which are notes with a maximum maturity of one year, from $8,000,000,000 to $10,000,000,000; and to issue $10,000,000,000 in treasury notes or bills having a maximum maturity of five years and a minimum of one year. These three items of $10,000,000,000 each are not cumulative, Mr. Glass explains. It may be desirable to refund the outstanding treasury certificates into notes and the latter ultimately into bonds; in a word to employ any one or two of the plans or all of them successively, as circumstances dictate. The financing activities will not raise more than $10,000,000,000, however, providing the bill Mr. Glass wants is passed, because he estimates that to be the maximum amount the government will need to clean up its war expenses.

Liberty Steel Increases Capital Stock

At the annual stockholders' meeting of the Liberty Steel Co., Warren, O., Feb. 13, an increase of $1,000,000 in common stock and $500,000 in preferred stock was authorized. This was the first general stockholders' meeting since the plant was put in operation some time ago. Edward F. Clark, president, reported production of black plates was 17,031 tons; common coke plates, 272,094 base boxes; shipments of black plate, 1956 net tons, and shipments of common coke plates, 230,728 base boxes. Gross sales for the year amounted to $1,925,957.34. The shipments were approximately 14,000 net tons, it was stated, this figure not including miscellaneous scrap.

The following directors were elected: Edward F. Clarke, H. M. Steel, W. H.

B. Ward, H. A. Taylor and George T. Filius. Edward F. Clark was re-elected president; H. M. Steel, vice president; Robert Kenworthy, secretary; B. J. Cook, assistant secretary, and O. M. Hibler, treasurer.

Earnings of American Can Show Decrease

Net profits of the American Can Co., New York, for the year ended Dec. 31 last, totaled $17,076,335, showing a decrease of $4,918,707 compared with the preceding year. The balance after depreciation, interest and federal taxes and 7 per cent interest dividend on preferred, was $3,114,496, equivalent to 7.55 per cent on common. This compares with the balance of $9,006,528 or 21.84 per cent in 1917. That new financing was being considered was admitted in the annual statement of President F. S. Wheeler and this he stated will be in the form of bank loans. For federal taxes in 1918, $7,000,000 has been set aside, which compares with $6,000,000 for 1917.

"Your company's munition department was employed last year and large quantities of supplies were delivered to the government," Mr. Wheeler stated. "Owing to the uncompleted state of some contracts only a portion of the profits expected have been taken in 1918 accounts. Since the signing of the armistice the major contract with the government has been equitably adjusted by a supplementary contract which fully protects the company's interests, and assures a fair profit to be realized in 1919."

Pays Dividend in Bonds

On Feb. 1, the J. W. Murray Mfg. Co., Detroit, maker of sheet metal parts for motor cars, paid a 10 per cent cash dividend in Liberty bonds to its stockholders. This was in harmony with the decision reached at a recent meeting of the board of directors, where it was developed that the company's liabilities were less than at any time in the last three years and that $200,000 worth of bonds were on hand. In order to afford better facilities for taking care of the increasing demands of its customers, it also was decided to build two additions to the main plant, install needed equipment and build a modern enameling department.

One of the chief accomplishments of the company during the war was the building of the Murray-Carnes all-steel airplane, without any physical or financial help from the government. At the time the armistice was signed, the company was devoting practically its entire energy to the gas defense service, having orders on its books for over 3,000,000 complete gasmask parts. In addition production was well under way on truck, trailer, mine anchor, aircraft, aerial bombs and ordnance essentials.

Col. Bolling Met His Death Fighting Against Odds

Col. Raynal C. Bolling, former general solicitor of the United States Steel Corp., who was the first American officer of his rank to be killed in action in France, met his death bravely and while fighting gamely against greatly superior odds. Col. Bolling was killed near Amiens, March 26, and the circumstances regarding his death now have been made known through his chauffeur, who was captured during the encounter and has just been released from a German prison camp.

The *New York Times* publishes the account of Col. Bolling's heroic last stand when hopelessly outnumbered, in a form of a statement by the chauffeur as follows:

"About 26 kilometers east of Amiens Col. Bolling met several British officers and inquired of them whether the Germans had arrived near that point. They told him they had seen no Germans near; their latest information was that the enemy's line was still three miles to the east, whereupon the colonel directed Holder to proceed. The car began the ascent of a considerable hill near Estress, from which the old battlefield of the Somme could be clearly seen, but before the summit was reached concealed enemy machine guns suddenly opened fire upon it from both sides of the road. The chauffeur attempted to turn his car, racing his engine to avoid stalling it, but the hail of machine gun bullets punctured the radiator and Col. Bolling ordered him to jump and take to cover.

"Holder found a shell hole by the road that gave protection and lay in it with his face turned, watching Col. Bolling as the latter, in a depression nearby, very cooly loaded his pistol while machine gun bullets sang about them.

"Soon firing ceased, a German officer appeared on the rim of the shell hole occupied by Holder, who was unarmed, and began shooting at him, the pistol bullets striking around the chauffeur's head, but missing him. Col. Bolling, who was an expert with the revolver, shot at the German and killed him instantly. Immediately a second German officer appeared and fired twice at Col. Bolling. The first shot went through his heart.

"Holder pretended that he was dead, hoping that when dark came he might make his way west through the new German line forming. He was not disturbed for more than an hour although German soldiers were constantly passing. Finally they discovered he was alive and marched him back to a prison camp. He saw them rip open Col. Bolling's traveling bag and rifle his pockets."

Large Sales

Of Products for Motor Fuel Continue—Other Lines Sluggish

New York, Feb. 15.—It is thought in well informed quarters in the coal tar products market that prices of at least some of these products will come down again materially in the course of the next two or three weeks. Much business, it is believed, is held up by the feeling that prices have not hit bottom, and it is felt that reductions would be salutary. Sales made this week were in very small volume, excepting those to garages. The latter continue to buy large quantities of benzol, mixed with toluol and solvent naphtha, for use as motor fuel. So large are these sales that, in conjunction with the recent shrinkage in production, they tend to prevent any increase in stocks. This business continues to be done somewhat under the regular market, which is 20 to 25 cents per gallon at producers' plants, for pure benzol; 20 to 25 cents per gallon at producers' plants for solvent naphtha, and 25 to 35 cents per gallon at producers' plants, depending upon quality, for toluol.

A somewhat better volume of business has characterized naphthalin lately, but in general this product also is moving slowly. A little spot buying and some contracting is being done regularly on the basis of 8½ to 9½ cents per pound for flakes and 10½ to 11½ cents for balls.

Sulphate of ammonia has been featured by some buying during the week but it involved only small quantities, so that stocks are accumulating. The price of this product continues from $4.45 to $4.55 per 100 pounds. The phenol market continues absolutely flat. The price of phenol is somewhere under 15 cents per pound.

Coke Oven By-Products

Spot	
Per Gallon at Producers' Plant	
Pure benzol	$0.20 to .25
Toluol	.25 to .35
Solvent naphtha	0.20 to .35
Per Pound at Producers' Plants	
Phenol	No market
Naphthalin, flake	$0.08½ to .09½
Naphthalin, balls	.10½ to .11½
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$4.45 to 4.55
Contract	
Pure benzol	$0.20 to .25
Toluol	.25 to .35
Solvent naphtha	.20 to .25
Per Pound at Producers' Plant	
Phenol	No market
Naphthalin, flake	$0.08½ to .09½
Naphthalin, balls	.10½ to .11½
Per 100 Pounds Producers' Plants	
Sulphate of ammonia	nominal

Real Business Marks Tool Trading

In Some Districts Transactions Remind Dealers of Prearmistice Period—Inquiries Abound —Sizable Orders Placed—Many War Plants Selling Equipment at Bargain Prices —Railroads Expected to Buy Heavily When Government Control Ends

BUSINESS days like those which preceded the signing of the armistice have returned to the machine tool market in some respects. This is true in that telegraphic and telephonic inquiries are being followed by the placing of orders by these methods and it is not true that in all districts, large lists and large contracts are lacking. This keen activity prevails more in the west and in the Cleveland territories than in Pittsburgh and the east. In Pittsburgh, the trade continues to mark time while in New York the volume of buying has dropped off as compared with the earlier days of the month. In the east the character of the inquiries has improved and there is an absence of requests for prices merely for claim settlement purposes.

Automobile, tractor and truck builders, accessory and parts manufacturers contribute most of the inquiries coming to Cleveland and Chicago dealers. While automobile plants are for the most part, well equipped, many are coming into the market. The General Motors Corp. is buying for several of its plants in Michigan. The Hudson Motor Car Co., Detroit, is asking for lathes, etc. The Hollis Tractor Co., Tiffin, O., is expected to send out a large list soon. The U. S. Piston Ring Co., the Columbia Axle Co., and the Torbenson Axle Co. are recent buyers in Cleveland, whose needs are not all filled.

War work plant dismantling continues at a rapid rate. Used machinery dealers are enabled to present many attractive offerings. These meet with ready sale. Rapid progress is being made by the Biggs, Watterson Co., Cleveland, in the disposition through its Dayton office, of the contents of the plant of the Dayton Metal Products Co., Dayton, O. About 1000 machines are offered and low prices are the rule, even though many of the machines have not been used. The Ohmer Fare Register Co., Dayton, also is endeavoring to dispose of machines at low prices. The production department of the Marine Engineering Co., South Boston, Mass., and the war plant of the Excel Mfg. Co., Charlestown, Mass., are to be sold at auction this week by J. E. Conant & Co., Lowell, Mass. Many new and late types of lathes, milling and grinding machines, shapers, planers, drills, etc., are to be offered. Equipment from one or two war plants is being sold by the Imperial Munitions Board, Toronto.

Government-owned equipment is being stored against future needs and for gradual assimilation later. Much machinery is being stored at the Pittsburgh and other arsenals and there is talk of making Neville Island, the site of the ordnance plant, a storage place for guns, munitions, etc. Machine tools and equipment are being stored in many plants in Ohio and Michigan.

When the government returns the railroads to private owners on June 30, which now seems probable, many tool orders are expected to be released. At present, practically the only railroad buying of machinery is by the Pennsylvania lines west.

Inquiries from abroad before the tool trade, come from France, Italy, Spain, Roumania and South America. In the case of France, a commission supervises all purchases of American-made tools and if it is at all possible for the machinery to be made in France, the purchase is not consummated. This serves to protect that nation's home industries and is not so stringent as a positive embargo, rumors concerning which have been in the air. A warning note is being sounded to American manufacturers. It seems that from France and Belgium come many requests for catalogs, drawings, photographs, prices, etc., on machine tools and other equipment. These originate in German houses, even though requests come from individuals and when they arrive abroad are slipped into Germany to the profit of that country's industries, since many new ideas are thus being obtained and a line is being kept on what the manufacturers of this country are offering.

Inquiry Rate Falls While Character Improves

IMPROVEMENT in tone in the eastern machine tool market apparent recently, has not been so much in evidence during the past week. This appears to be due in part to a lack of the more sizable lists which were noted early in the month, and to the continued small volume of actual buying. Nevertheless, sellers state they detect a more desirable character of inquiry. They believe that there are not the number of inquiries being made at this time with the purpose simply of sounding the market that appeared earlier in the year; neither are there the number of inquiries coming in from manufacturers desiring to obtain figures for estimating claims in the case of cancellations.

While manufacturers for the most part are firm in their quotations, a weakening in prices is becoming more marked. This is noted especially in the smaller and more common types of tools, such as lathes and drilling machines. Discounts not only are being made for cash payments in certain instances, but reductions of about 10 per cent are being quoted. A factor in the present

Ludlum "Consistently Uniform" Brands:

MOHAWK EXTRA
High Speed Steel

POMPTON
Carbon Tool Steel

ALBANY
Alloy Tool Steel

ONEIDA
Oil Hardening Tool Steel

HURON
Alloy Die Steel

TETON
Ball Bearing Steel

YUMA
Chrome Magnet Steel

We admit that we are proud of our plant. And we wish those of you who have never had the opportunity of visiting us at Watervliet, to know the **reasons why** we are proud.

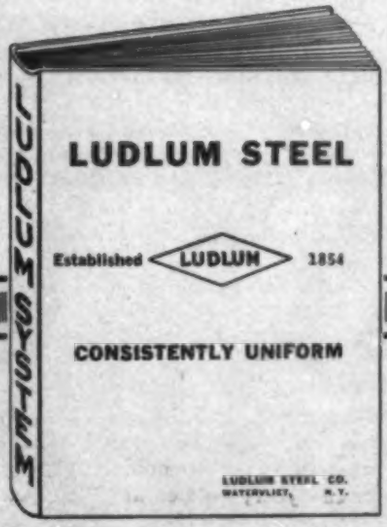
Therefore in **this** and **succeeding** issues of *The Iron Trade Review* we will show characteristic scenes of what will be taking place any day on which you may be pleased to "drop in" on us.

The illustration above is an exterior view of our Offices. Our next advertisement **will show** a general view of our melting and pouring shop.

LUDLUM STEEL COMPANY

General Offices and Works

WATERVLIET, N. Y.



This LUDLUM - Text Book is a complete treatise on the various tool steels. It describes the correct method of forging, hardening, tempering, annealing. It contains accurate calculation tables and other valuable information. Just ask us for it and it's yours, *free.*

weakness is said to be the tendency of some of the newer companies, companies which have come into existence as a result of the war, to attract business from the manufacturers of the more established and more widely known lines of machinery by making concessions.

While several fair-sized lists of machine tools are pending for shipment abroad, business of this character continues to lag. At present, sizable inquiries are before the trade from France, Italy, Spain, Roumania and several South American countries.

Deliveries have improved to such an extent that it now is possible to obtain almost any description of machine tool for immediate shipment.

Buying of cranes in the East remains at a virtual standstill, with new inquiry exceedingly light.

Fair Amount of Business is Booked

LITTLE change in the quiet situation in machine tool trade is noted in the Chicago market. Business, however, is being booked at a fair rate in spite of lack of large inquiries or orders. By comparison with former volume present business seems light but bulks well at the end of the year. The outstanding tendency of the trade at present is the buying of equipment by companies manufacturing automobile accessories and repair parts. This includes presses and lathes for the most part. Manufacturers of auto parts for builders who assemble cars are also adding to their equipment.

Railroads continue to remain out of the market until their budgets are approved at Washington, although their purchases are much needed by the trade and the roads need the machines. When this business is released the market will be active.

Pittsburgh Trade Has Eyes on Future

IN Pittsburgh the machinery and tool trade still is expectant that business will develop in the near future. Such demands as come up are for single machines to replace those that have become worn out. These requirements provide a fair amount of business in stock offerings, or in machines that can be delivered promptly, but big equipment orders still are conspicuous by their absence. Construction projects in this district that will call for big lines of equipment still are in the estimating stage. A Pittsburgh engineering company has been working on plans for a steel plant in the East. Original specifications were thrown in the discard with the termination of the war and new ones were asked for. Bids in response to the second set of plans were above the price ideas of the steel company and construction of the plant is held up, and in turn the orders for machines and tools are in abeyance. It is reported that a local cement company is planning extensions that may call for a few cranes. The government is reported to be storing a good deal of machinery at the Pittsburgh arsenal and it has been announced that the site of the abandoned ordnance plant on Neville island will be used for the erection of storage buildings for housing stocks of munitions and guns that were left on the hands of the government with the conclusion of the war.

Cleveland Enjoys Splendid Selling Week

TELEGRAPHIC inquiries answered in the same way, followed by the placing of orders by wire, have caused the Cleveland machine tool industry to assume some of its prearmistice aspects. Mail inquiries likewise are coming in in large numbers. A decided improvement is noted in the market, even though no particularly large lists are involved. These inquiries and orders do not come from any specific industry but from varied lines of activity. The automobile truck and tractor manufacturers lead, with makers of automobile parts and accessories following them closely. Buying is being done by the General Motors Corp., for its various plants, including the Buick, Cadillac, Oakland, Chevrolet, etc. The Cleveland Motor Car Co., Cleveland, a new company formed by the directors of the Chandler Motor Car Co., has been quietly buying equipment for its new plant to make a light car. It is not definitely known what equipment is needed by the Templar Motors Corp., Cleveland, but it is stated that the company is expanding. It plans to double its production capacity to turn out approximately $8,000,000 worth of cars in 1919 and to do that, more machine tools will probably be purchased. The Hudson

St. Louis Machinery Man Confident as to Trade's Future

IN AN article in the Public Ledger, Philadelphia, Austin H. Campbell, president, Monarch Machinery Co., St. Louis, says: "We feel confident concerning the prospects of an unprecedented industrial business activity. The world war that demanded the greatest possible production in machine tools, is now happily ended and with the end comes the thought that the price of machinery will be reduced.

"While it is true there have been slight price concessions on the part of some manufacturers since the ending of the war, this has been mostly by factories recently engaged in the manufacture of machine tools to supply the exceptional demand created by the war.

"The apparent intention of most manufacturers is to continue the present high rate of wage, which prohibits a reduction of price on their product. There is more than one instance of manufacturers raising their prices as of Jan. 1, due partly to improved design and added features, the result of war's necessity.

"During the war the government was a large purchaser of machine tools needed in production of war materials, some of which have been delivered. There is still a considerable quantity of machinery to be finished, and now that the war is over the government will have a surplus of about $200,000,000 worth of standard equipment which will have to be disposed of.

"The fear of this equipment being offered immediately on the market is past, as the apparent attitude of the government, working through the salvage board, is to liquidate these machines over the period of about four years, which will materially tend to stabilize conditions and help maintain present values.

"While it is true the munition manufacturers, who have been big buyers are no longer purchasers of equipment, we must not overlook the fact that nonessentials (so called during the war) who were prevented by government regulation from enlarging their plants and installing equipment, are now the potential buyers of machinery in the future, as they are free to extend plants and purchase much-needed equipment. This will enable them to accept the large volume of business that is sure to come as a result of peace conditions."

SIVYER S CASTINGS

The Sivyer Service of providing Electric Steel Castings has for its objects the decrease of machining costs and the increase of wearing-quality and life. Both are attained by methods which result from long experience and begin with the design of the casting itself. When we find that a casting we are asked to furnish is of a design not consistent with good foundry practice, we study its function in the completed unit and offer the necessary suggestions to make it a really practicable casting job without affecting in any way its function and efficiency.

Secondly, Sivyer Service analyzes the functions of the casting and specifies the proper composition steel for the job; long experience with carbon and alloy steels has enabled us to reduce costs and increase quality remarkably for many different industries.

Thirdly, Sivyer Service makes a careful study of the pattern and molding problems involved, for improper gating and insufficient risers are often the greatest wasters of machining labor and metal.

Fourthly, Sivyer Service analyzes carefully the proper annealing methods to be used and controls their proper application through unfailingly efficient equipment and men. In short, the Sivyer Service supervises every step necessary to secure unusually and unfailingly good castings of electric steel. It never relies on one factor alone, relies very little even on the natural freedom of electric steel from occluded gases and on its commonly recognized merit in resisting crystallization. It also depends but little on the inherent scientific accuracy of the electric furnace process. From casting-design to sand-blasting and tumbling, the fundamental superiority of Sivyer Steel is due to its men and metal. Their value is best proved by the fact that, although the production of steel castings is generally looked upon as a local one, the Sivyer market is national.

THE punctilious care exercised at every stage in the production of Sivyer Castings goes even to the minor phases of pouring. The opening of each mold is kept carefully covered to the last minute. It is the final precaution in *preventing* sand-spots in the castings, which so often raise materially the costs of machining. The painstaking thoroughness here exemplified is one of the many factors which have won for Sivyer Castings their national market.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

Say you saw it in THE IRON TRADE REVIEW

Motor Car Co., Detroit, wants four 24-inch turret lathes among other machines.

Tractor makers are busy adding to their equipment. The Hollis Tractor Co., Tiffin, O., is placing itself in line for increased production of farm tractors and a large list of tools is expected in about 30 days. The Townsend Mfg. Co., Janesville, Wis., will increase its capacity to double its output of farm tractors and additional equipment is to be purchased. The Hercules Motor Mfg. Co., Canton, O., is asking for universal milling machines and the U. S. Piston Ring Co., Cleveland, wants two 14-inch lathes. B. F. Avery & Sons, Louisville, Ky., manufacturers of plows, agricultural implements, etc., will purchase equipment about July 1. The Anderson Electric Car Co., Cleveland and Detroit, has lined up its program for each plant. The Detroit plant will take care of body building, painting, trimming and fender production, while the Cleveland plant will produce industrial trucks and motors for passenger cars. Equipment purchases are anticipated.

While no further information seems obtainable regarding the sale of government-owned equipment, several lists of equipment from war work plants are appearing. Government-owned machinery is being stored in Ohio and Michigan as well as elsewhere and it is thought will be disposed of gradually at a later date. Storage space is set aside in many plants for this machinery, the tools are piled up and marked plainly: "owned by the United States government." One list of machinery from a war work plant which is creating a stir in the used machinery market originates in Dayton. It is in the machinery, machine tools and equipment of one of the plants of the Dayton Metal Products Co., offered exclusively by the Biggs-Watterson Co., Cleveland, from its Dayton branch. The comprehensive list contains approximately 1000 tools and while many of them have been used but a short time, and some have never been uncrated, bargain prices have prevailed and already considerable progress has been made in their disposal.

Several machine shops are looking for machine tools. The Toledo Machine & Tool Co., Toledo, O.; the Strong Mfg. Co., Sebring, O.; the Willys-Overland Co., Elyria, O., are among those on the list. The Krein Chain Co., Wapakoneta, O., is installing machinery. The Enco Mfg. Co., Binghamton, N. Y., is asking for a 22-inch drill press, back-geared automatic cutoff. The Defiance Machine Works, Defiance, O., is re-equipping its plant, having finished its war work. The Hill-Curtis Co., Kalamazoo, Mich., wants one each 4-foot radial drill, 18 and 20-inch heavy duty engine lathes and 18-inch Monitor lathe. It has several machines to sell. The Massillon Bridge & Structural Co., Massillon, O., wants a hammer. P. E. Rosselli, 1410 Petronia street, Key West, Fla., is asking for a 24-inch used drill press. The Herbrand Co., Fremont, O., wishes to obtain some Cincinnati lathes. Frank Sweet, Buffalo, is asking for prices on shears, punches, drills and hoisting engines for structural steel work. The National Pressed Steel Co., Massillon, O., is looking for drawing presses, 24 inches between housings; universal grinding machines similar to No. 2 Landis; 24-inch turret lathes; 10 to 15-inch small high-speed lathes; 10 to 18-inch engine lathes, 6-foot bed or longer; small grinding wheel stands; circular metal cutting machines; 20-inch upright drill press or 3½-foot radial drill. The O. K. Clutch & Machinery Co., Columbia, Pa., wants a machine to cut 3-pitch gears. The Electrical Mfg. Co., Cleveland, wants a 14-inch drill press and a power press.

War Machinery for Sale in Canada

ONE of the outstanding features of the machine tool market in Canada is the appearance of advertisements in the daily newspapers and elsewhere of lists of equipment from plants formerly operating on war work. Some of these sales are held under the auspices of the imperial munitions board. It is asking for bids on the plant and equipment of British Forgings, Ltd., Toronto, Ont. This comprises a scrap metal shed, melting house, forge shop, power house, dock, railways, etc. Traveling cranes, presses, accumulators, pumps and auxiliary machinery are among the items offered.

This board also is offering the machinery and equipment of the aircraft division of the Willys-Overland, Ltd., West Toronto, Ont. Bids will be received until Feb. 27 on machinery consisting of lathes, drill presses, milling machines, boring mills, planers, shapers and miscellaneous tools, electric motors and small tools.

New Construction and Equipment

Concise and Timely Business Building Opportunities from the Field of Industry

Among New England Factories

BATH, ME.—The Watson-Frye Co. will take bids about March 5 for a 1-story foundry and a 2 or 3-story factory building.

PORTLAND, ME.—The Eastern Metal Products Co. has been incorporated to operate a foundry, machine shop, etc., with $25,000 capital.

PORTSMOUTH, N. H.—The Narragansett Shipbuilding Co. has started work on the erection of a drydock.

BOSTON.—The Herschell-Spillman Motor Co. recently was incorporated with $1,750,000 capital, by Floyd R. Switser, Brookline, Robert H. Spare, West Medford, Thomas C. Perkins, Hartford, Conn.; William M. Ferris Jr., Newton; Harry S. Bradstreet, Boston and Alton F. Tupper, Arlington.

BOSTON.—The George A. Fuller Co. has been awarded the contract to build a steel, 48-foot high, 83 x 314-foot storage shed to cost $80,000 for the government at the Charlestown navy yard.

EVERETT, MASS.—The Standard Envelope Sealer Mfg. Co. has closed on bids for the construction of a 2-story, 65 x 125-foot factory.

LEE, MASS.—The plant of H. C. Clark & Son, paper making machinery, in East Lee, was damaged by fire, with $60,000 loss.

MILFORD, MASS.—The Milford Pink Granite Co. will build a granite, 1-story, 50 x 80-foot power house and blacksmith shop and a 1-story cutting shed to replace those recently damaged by fire.

NORTH ADAMS, MASS.—The Pneumatic Safety Tool Co. recently was incorporated with $100,000 capital, by Edward A. McMillan, Arthur W. Chippendale, North Adams, and Frederick K. Daggett, Brookline.

SOMERVILLE, MASS.—The 2-story tool shop of the Mystic River Shipbuilding Co. was damaged by fire recently.

SPRINGFIELD, MASS.—The Fleming Machine Tool Co. recently was incorporated with $100,000 capital

Low Accident Hazard with Kreodone Floors

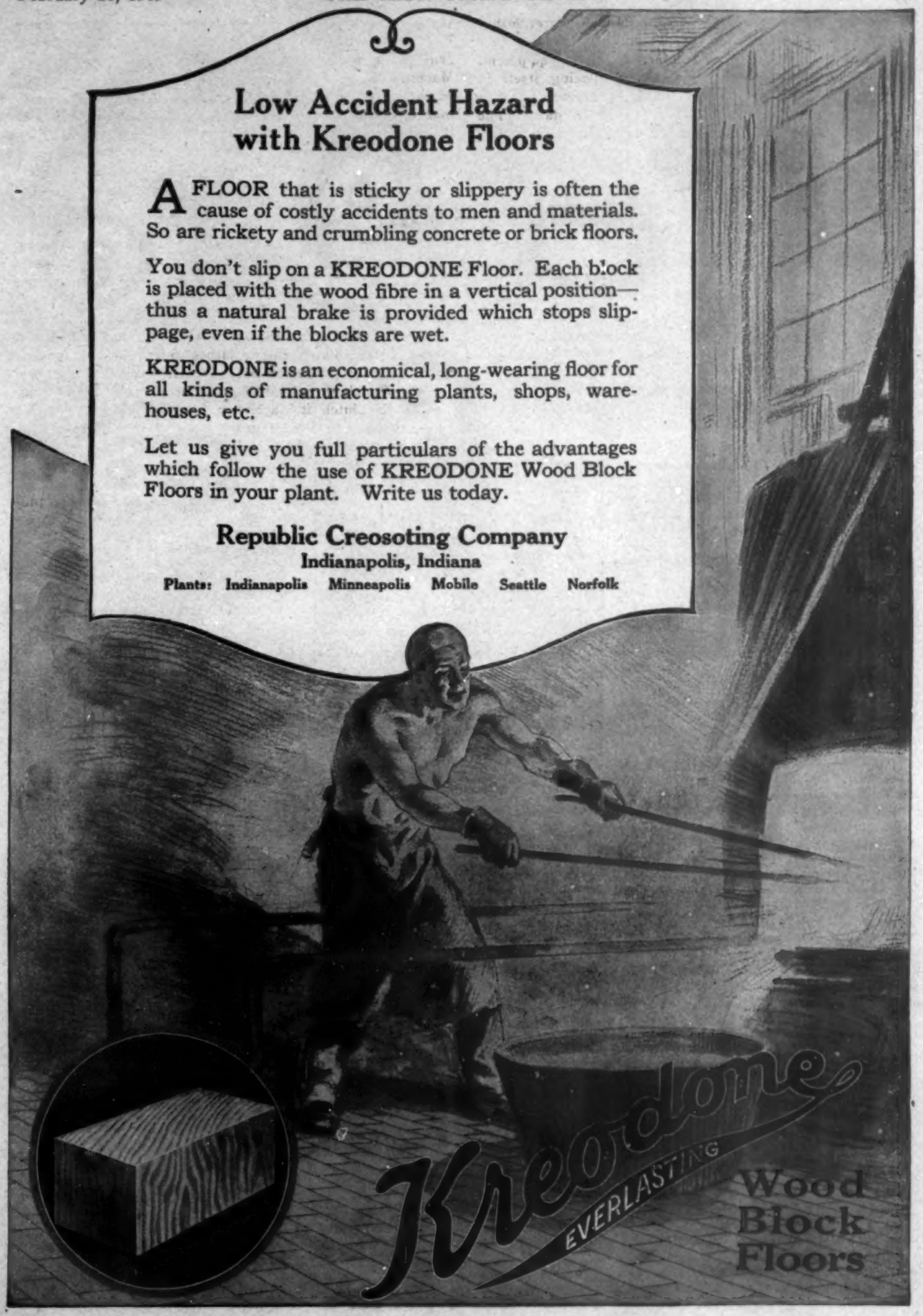
A FLOOR that is sticky or slippery is often the cause of costly accidents to men and materials. So are rickety and crumbling concrete or brick floors.

You don't slip on a KREODONE Floor. Each block is placed with the wood fibre in a vertical position—thus a natural brake is provided which stops slippage, even if the blocks are wet.

KREODONE is an economical, long-wearing floor for all kinds of manufacturing plants, shops, warehouses, etc.

Let us give you full particulars of the advantages which follow the use of KREODONE Wood Block Floors in your plant. Write us today.

Republic Creosoting Company
Indianapolis, Indiana
Plants: Indianapolis Minneapolis Mobile Seattle Norfolk



by Isaac T. McGregor, George W. Fleming and Frederick G. Wooden.

PROVIDENCE, R. I.—Bids are now being received by the United States shipping board, Philadelphia, on a 2-story, 60 x 304-foot machine shop and office building at Fields Point.

NEW HAVEN, CONN.—The New England Iron Works will build a brick, 1-story, 80 x 150-foot factory to cost $50,000.

WATERBURY, CONN.—The American Brass Co., 414 Meadow street, contemplates the erection of a factory addition.

WATERBURY, CONN.—Work has started on the erection of an addition, 30 x 85 feet, to the plant of the Waterbury Farrel Foundry & Machine Co.

Along the Atlantic Coast

NORFOLK, VA.—The Virginia Iron Works has awarded a contract for the erection of a 55 x 70-foot machine shop, estimated to cost $10,000.

BROOKLYN, N. Y.—The Metal Package Co., 344 Carroll street, has had plans drawn for alterations to its plant.

BROOKLYN, N. Y.—The Nassau Electric Mfg. Co. has been incorporated with $10,000 capital, by L. Lindauer, S. Doynow and H. H. Waller, 32 Court street.

BUFFALO.—The Ross Heater & Mfg. Co. contemplates the erection of a plant addition, 1-story, 50 x 75 feet.

BUFFALO.—Bradsto Appliances, Inc., has been incorporated with $50,000 capital, to manufacture auto accessories, metal castings, etc., by H. E. Bradford, Buckingham hotel, J. H. Weir, 939 Lafayette avenue and G. W. Farrar, 232 Voorhees avenue.

COLONIE, N. Y.—Corning & Co., Inc., to make metal alloys and metallic compounds, recently was incorporated with $1,100,000 capital, by H. G. Batcheller, P. and E. Corning.

ENDICOTT, N. Y.—Work has been started on a $40,000 boiler plant addition by the International Time Recording Co.

ELMIRA, N. Y.—The Universal Radio Mfg. Corp., machinery and wireless apparatus, recently was incorporated with $50,000 capital, by W. C. Ballard, J. B. Coykendall and H. A. Moore.

JAMESTOWN, N. Y.—The Jamestown Boiler Works, Inc., recently was incorporated with $50,000 capital, by G. W. Edwards, A. S. and G. O'Brien.

MOHAWK, N. Y.—The State of New York, care of the state superintendent of public works, is having plans drawn for the erection of an hydraulic power plant.

NEW RIFTON, N. Y.—The Hudson Power Corp., care of the Kingston Gas & Electric Co., Kingston, N. Y., contemplates the erection of a power plant on the Walkill river.

NEW YORK.—Vincent C. Pepe, 40 South Washington square, plans the erection of a 1-story machine and repair shop, 35 x 45 feet.

NEW YORK.—The Orteig Motor Co., 101 West End avenue, has acquired a 3-story machine shop now being erected.

NEW YORK.—The Hollander Metal Stamping Co. recently was incorporated with $20,000 capital, by H. and H. and S. Hollander, 133 West 113th street.

NEW YORK.—William Hussey & Sons, 150 West Thirty-fifth street, manufacturers of plumbers' supplies, plan the erection of a plant extension, 42 x 100 feet, estimated to cost $75,000.

NEW YORK.—The Metal-I-Let Mfg. Co., manufacturer of tags and checks, has been incorporated with $50,000 capital, by G. A. Walker, F. W. Suydam and E. P. Gaillard, 220 West Fifty-eighth street.

NEW YORK.—The Efficiency Device Corp., to make machine shop, foundry and factory supplies, recently was incorporated with $10,000 capital, by W. O. Vivarias, H. A. Tremaine and C. R. Tock, Flushing.

ROCHESTER, N. Y.—The Atlantic Stamping Co. contemplates the erection of an addition to its plant.

POUGHKEEPSIE, N. Y.—The United Hudson Electric Corp. recently was incorporated with $20,000 capital by E. D. Alexander, T. R. Beal Jr., and J. L. Wilkie, 16 West Twelfth street.

SYRACUSE, N. Y.—The Meachem Gear Corp. has been incorporated with $300,000 capital, by J. F. Sabine, T. W. and T. G. Meachem.

SYRACUSE, N. Y.—The Arthur L. Jones Corp., manufacturer of oil engines, recently was incorporated with $75,000 capital, by L. H. Bladen, L. V. Amann and A. L. Jones.

THIELLS, N. Y.—Bids will soon be asked for by Frank A. Vanderlip, president of the board of managers, 7 Wall street, New York, for a power house addition for Letchworth village.

WOODHAVEN, N. Y.—The American Die & Tool Works, 182 Center street, New York, is having plans drawn for the erection of a plant, 50 x 90 feet, estimated to cost $25,000.

BROWNSVILLE, PA.—The Diamond Coal Co. plans the erection of a mine repair shop, 45 x 90 feet.

ERIE, PA.—The Browning Folding Machine Co. contemplates the erection of a plant.

FRANKLIN, PA.—The Chicago Pneumatic Tool Co. plans to erect an assembling plant here this summer.

HECLA, PA.—The tipple of the Hecla Coal & Coke Co., Luzern township, recently was damaged by fire. The loss was estimated at $30,000.

LANCASTER, PA.—The Mountain Bloop Radiator Co. has been incorporated with $2,500,000 capital, by V. B. Vaux, J. B. Stauffer, V. B. Stauffer and Clayton S. Billinger.

McKEES ROCKS, PA.—The Enterprise Stamping Co. contemplates the erection of a 1-story addition to its plant.

MEADVILLE, PA.—The Meadville Malleable Iron Co. plans the erection of a power plant, 1-story, 45 x 50 feet at an estimated cost of $10,000.

MT. WOLF, PA.—The Mt. Wolf Repair & Novelty Works, plans the establishment of a local plant for the manufacture of metal goods, etc.

NORTH WALES, PA.—Plans have been prepared by the North Wales Machine Co. to replace the building recently badly damaged by fire. It is estimated that the new structure will cost approximately $30,000.

NOXEN, PA.—The Armour Leather Co., Chicago, is building a boiler plant here at an estimated cost of $50,000.

OIL CITY, PA.—This city contemplates the erection of an addition to its boiler house at an estimated cost of $45,000.

PHILADELPHIA.—The Philadelphia Electric Co. is reported to be contemplating improvements to its plant.

PHILADELPHIA.—James Yocom & Son, Inc., castings, recently was incorporated with $50,000 capital, by Thomas C. Yocom, Cynwyd.

PHILADELPHIA.—The Fox Motor Co., 2545 North Broad street, is specializing in general machine and tool work.

PHILADELPHIA.—The Philadelphia New Method Molding & Metals Corp. has been incorporated with $1,000,000 capital, by Samuel B. Howard, Phillip L. Neisser and A. W. Brittons, 28 Nassau street, New York.

PITTSBURGH.—The De Long Motor & Truck Co. plans the erection of a 2-story machine shop and garage, 80 x 120 feet, at an estimated cost of $38,000.

TEMPLE, PA.—The Temple Malleable Iron & Steel Co. is about ready to take bids for the erection of a plant, 1-story, 310 x 320 feet.

WILKES BARRE, PA.—The Sheldon Axle & Spring Co., 221 Conyngham avenue, plans alterations to its plant.

EAST ORANGE, N. J.—The Lock Joint Pipe Co. plans the erection of a repair shop, 40 x 80 feet.

EDGEWATER, N. J.—The Aluminum Co. of America, 120 Broadway, New York, contemplates the erection of a plant addition, 125 x 300 feet.

HOBOKEN, N. J.—The Experimental Sheet Metal Works, 1618 Willow avenue, recently was organized. A. L. Kimmel and John Schaeffer head the company.

IRVINGTON, N. J.—The National Welding Co. is about to start work on the erection of a shop.

NEWARK, N. J.—The Murray Wire Co. has been incorporated with $125,000 capital, by J. H. Murray, Peter Igoe and J. R. Cooney.

NEWARK, N. J.—The Walmax Mfg. Co., metal products, has been incorporated with $125,000 capital, by Max Walther and Oswald Jentsch, West Orange.

Government Inquiries

BIDS on the following equipment are desired by the navy department, bureau of supplies and accounts:

Four cylinder surfacers, miscellaneous band saws, and four planers and jointers, 3757, Brooklyn, March 18.

Six drill presses, 3772, Washington, March 18.

Three wood lathes, 3774, Norfolk, March 18.

Two air compressors, 3788, South Boston, March 18.

One band resaw saw, 3789, San Diego, Cal., March 25.

Schedule numbers, dates of opening and places of delivery follow the specifications of the tools.

Central States Activities

DELOIT, WIS.—Charles H. Besly & Co., Chicago, manufacturing disc grinders, have acquired 66 feet of frontage adjoining their works here for future extensions.

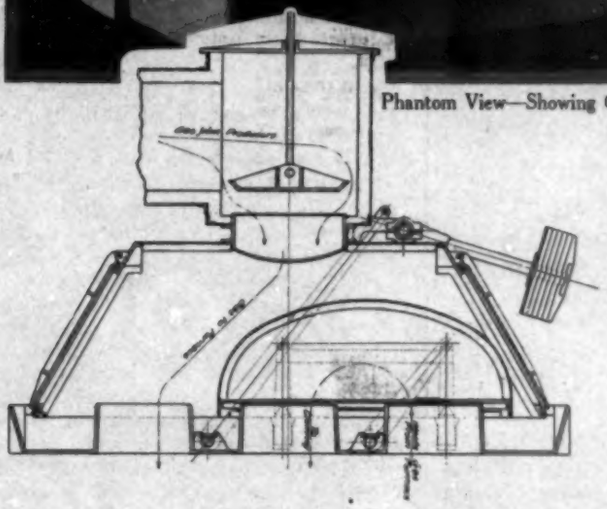
CLINTONVILLE, WIS.—John Rosnow contemplates the erection of a machine shop costing about $12,000 with equipment.

GREEN BAY, WIS.—The Northern Corrugating Co., recently chartered with $200,000 capital is taking over the business of the Fox River Cornice Works, and will build a 2-story addition, 50 x 220 feet. P. Frank Flagg, Milwaukee, is manager.

JANESVILLE, WIS.—The Samson Tractor Co. expects to complete one unit of its new tractor plant about March 1.

JANESVILLE, WIS.—The General Motors Co. is having plans made for the second unit of its tractor plant, including core room and foundry, 200 x 500

Phantom View—Showing General] Design and Construction of W-S-M Gas Reversing Valve.



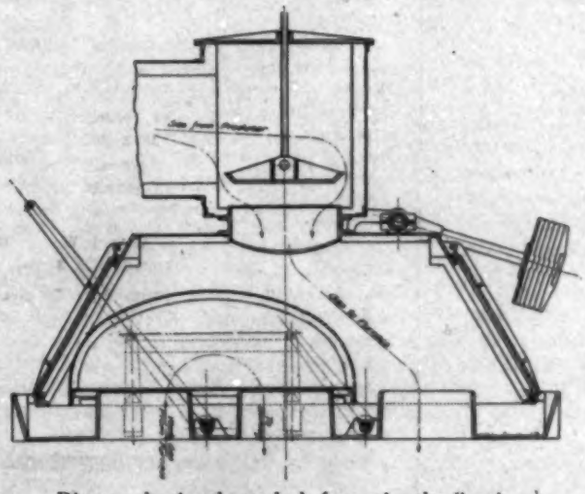


Diagram showing the method of reversing the direction of the Flow of Gas.

Gas Reversing Valve

In the operation of any gas fired furnace, it is highly desirable that the valve controlling the direction of the flow of gas should operate rapidly and easily. This feature has been kept foremost in mind in designing the ***W-S-M Gas Reversing Valve.***

That the conditions have been ideally met is evidenced by the fact that a thirty-six inch hand operated valve can be reversed in from three to seven and one-half seconds with a pressure of not over twenty-five pounds. This is accomplished by a perfectly balanced hood and counterweights.

All operating mechanism is outside of the casing where it is easily accessible and always cool.

Write for Bulletin No. A 16 for further information.

THE WELLMAN-SEAVER-MORGAN CO.

CLEVELAND, OHIO, U.S.A.

feet, costing $250,000. F. D. Chase, Inc., Chicago, is engineer.

JANESVILLE, WIS.—The common council has engaged J. C. Jacobson, 1135 First National-Soo building, Minneapolis, to prepare specifications for improvements in and extensions of the municipal electric light and power plant.

JANESVILLE, WIS.—The Townsend Mfg. Co., Inc., manufacturer of tractors, etc., recently increased its capital, from $125,000 to $175,000. From the sale of this stock, the company plans to double its output and will need more equipment and if necessary will erect additional buildings.

MANITOWOC, WIS.—The Manitowoc Plating Works, W. J. Wachowits, manager, 1020 South Tenth street, plans a 1-story plant, 50 x 100 feet to cost $10,000.

MENASHA, WIS.—Steps have been taken by the Menasha common council toward the construction of a new steel bridge with a draw-span of 50 feet, over the Fox river at Washington street. C. H. Kelly is city attorney.

MILWAUKEE.—The Roberts Brass Co. has had plans drawn for the erection of a plant addition, one story, 32 x 40 feet.

MILWAUKEE.—The Sun Carburetor Co. recently was incorporated with $100,000 capital, by Emil F. Deutser, F. J. Ramler and J. B. Drahanovsky.

MILWAUKEE.—The Mitchell Window Device Co., capitalized at $25,000, has been chartered to manufacture devices by Arthur R. Mitchell, Henry F. Nevermann and Edward C. Nevermann.

MILWAUKEE.—The Wisconsin Die Casting Co., capitalized at $25,000, has been chartered to manufacture dies and die castings by Gustav R. Hurz, Julius O. Roehl and Fred H. Koch, 501 First National Bank building.

MILWAUKEE.—The Res Mfg. Co., 2907 Meinecke avenue, manufacturing hardware specialties and lighting fixtures, has increased its capital stock from $25,000 to $50,000. The company is completing an addition to its plant. Adam W. Kaufman is secretary and manager.

KEWAUNCO, WIS.—The Leyse Aluminum Co., recently incorporated, plans the erection of a plant.

OSHKOSH, WIS.—The Challoner Co., manufacturer of woodworking machinery, plans to invest about $75,000 in extensions and new equipment.

OSHKOSH, WIS.—Articles of incorporation have been filed by the Whitmore Machine & Foundry Co., with $100,000 capital, by L. W. Whitmore, Bennett Plowright and Peter Verwey.

OSHKOSH, WIS.—The Molle Typewriter Co. has leased another floor in its present factory building and will install additional machinery and tools. R. D. Wynn is general manager.

SHEBOYGAN, WIS.—The Badger State Tanning Co. will build a machine shop and boiler house 70 x 95 feet costing $25,000.

WEST ALLIS, WIS.—Kearney & Trecker will build an addition, 46 x 250 feet.

ALMA, MICH.—It is reported the Republic Motor Truck Co. is planning to erect a branch plant in Toronto. R. D. Jones is general manager.

BATTLE CREEK, MICH.—The United Steel & Wire Co. has increased its capital from $100,000 to $200,000 and will build additions, 100 x 200 feet, 32 x 40 feet, and 40 x 100 feet.

DETROIT.—The Hudson Motor Car Co. plans the erection of a large storage building, 60 x 196 feet.

DETROIT.—The Liberty Motor Car Co. has issued $250,000 of preferred stock to provide for expansion.

DETROIT.—Fire recently damaged part of the plant of the C. R. Wilson Body Co. with a loss estimated at $400,000.

DETROIT.—The Monroe Sheet Metal & Mfg. Co., 553 Myrtle street, is completing plans for the erection of a plant.

DETROIT.—The General Machine & Iron Works has been incorporated with $15,000 capital, by Ignace Schmidt, Frederick J. Schmidt and Julius Schmidt.

DETROIT.—Plans have been prepared for an addition to the boiler house of the Detroit waterworks plant.

DETROIT.—The Trippensee Mfg. Co. has purchased the plant of the Wolverine Mfg. Co. and will make extensive additions to its machinery. W. F. Trippensee is president.

DETROIT.—L. A. Young Industries, Inc., has purchased a plant at Shelbyville, Ind., for the manufacture of farm implements. C. F. Schmoe is factory manager.

DETROIT.—The Clayton & Lambert Mfg. Co., 138 South Beaubien avenue, plans the erection of an addition to its sheet metal assembling plant at a cost of $15,000.

FLINT, MICH.—The Dort Motor Car Co. is reported to be contemplating the erection of an automobile manufacturing plant.

GRAND RAPIDS, MICH. — Additional equipment will be purchased by R. H. Haven & Son, 417 Front avenue, according to a report current here.

HOLLAND, MICH.—The DePree Chemical Co., 133 West Washington street, Chicago, contemplates the erection of a new plant.

KALAMAZOO, MICH. — The Kalamazoo Railway Supply Co. will build an addition, 50 x 130 feet. John McKinnon is president.

PONTIAC, MICH.—The Wilson Foundry & Machine Co., which recently purchased the Monroe Motor Co. plant, will utilize it for the manufacture of motors.

DEFIANCE, O.—The Defiance Machine Works has discontinued war work and plans to equip its plant with new machinery and to erect a new foundry shortly.

ALTON, ILL.—The Standard Oil Co. contemplates the erection of 60 stills here.

BLUE ISLAND, ILL.—The American Wire Fabrics,

Business Changes Recently Announced

EXPANSION of its New York business, has caused the Alvey-Ferguson Co., Cincinnati, manufacturer of conveying machinery to remove from 4840 Grand Central Terminal, where it has been located for several years, to the World Tower building, 110-112 West Fortieth street, New York City. It is in charge of Capt. E. Palmer Bernheim, who has just returned from overseas service. The company occupies the larger part of the fifteenth floor of the World Tower building.

* * *

The Alemite Metals Co., 341 West Chicago avenue, Chicago, has changed its name to the Alemite Die Castings & Mfg. Co.

* * *

To enable the Ashland Fire Brick Co., Ashland, Ky., to attend to its growing business in the Chicago district, it has opened a branch sales office at 29 South La Salle street, Chicago, with S. P. Adams in charge.

* * *

The sales and service departments of the Keller Pneumatic Tool Co., Chicago, have been removed to 20 East Jackson boulevard, Chicago. They are in charge of J. G. Osgood.

* * *

The Universal Nut Lock Co., Portland, Oreg., will remove its plant to the district known as Industrial Sites, at Seattle, Wash.

* * *

The Sterling Wheelbarrow Co., Milwaukee, has opened a direct factory branch at 79 Milk street, Boston, with R. F. Jordan in charge.

* * *

The San Francisco offices of the Blaw-Knox Co., Pittsburgh, have been removed from its warehouse there, 528 Second street, to 630 Monadnock building.

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H. Boker & Co., Inc., 101-103 Duane street, New York, has opened an office at 447 Book building, Detroit, in charge of W. H. Raisbeck. He will handle the company's complete line of tool steel and steel specialties.

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The Central Iron & Steel Co., Harrisburg, Pa., has opened a branch office in the Continental building, Baltimore, with D. R. Black in charge.

* * *

The Sioux Falls Metal Culvert Co., Sioux Falls, S. D., recently took over and will operate the business of the Dreadnought Co., Cedar Falls, Ia., manufacturer of all steel farm gates and the Nicholson tight-lock end gate.

* * *

The Donner Steel Co., Inc., Buffalo, has opened up a district sales office in the Penobscot building, Detroit, in charge of F. D. Hoerle, manager of sales.

* * *

The Electric Steel Co. of Indiana, Indianapolis, has opened an office in the Penobscot building, Detroit, in charge of A. J. Kinnucan, to enlarge its distributing effort among the manufacturers of trucks and tractors.

* * *

The Pacific Coast Steel Co., Seattle, has opened a sales office at 52 Broadway, New York, with L. G. Knight in charge, as manager of eastern territory sales.

208 South La Salle street, Chicago, is reported to be contemplating the erection of a plant.

CHAMPAIGN, ILL.—The Caldwell Electric Co. contemplates the erection of a small addition.

CHICAGO.—A contract has been let by the O'Malley Beare & Valve Co. for the erection of a plant estimated to cost $175,000.

CHICAGO.—The Woodworker Tool Works, 542 West Jackson boulevard, will start work soon on the erection of a new factory, 25 x 150 feet.

CHICAGO.—The Chicago Fuse Mfg. Co., A. D. Dana, president, 1014 Congress street, is having plans prepared for a 7-story plant to cost $170,000.

CHICAGO.—The Illinois Steel Co. is preparing to build additions to its South Chicago plant, costing $100,000.

Throughout the West

INTERNATIONAL FALLS, MINN.—This city contemplates the erection of a municipal pumping station.

MINNEAPOLIS.—The Minneapolis Steel & Machinery Co., C. M. Gillette, vice president, 2854 Minnehaha avenue, will equip a 2-story plant, 34 x 430 feet, which will be remodeled from a shell plant.

ST. CLOUD, MINN.—The Pan Motor Co., George Book, works engineer, will build a 1-story foundry, 130 x 180 feet.

OSKALOOSA, IOWA.—The Western Mfg. Co., manufacturer of valves, etc., recently increased its capital, in order to take care of a plant enlargement.

SIOUX CITY, IOWA.—The Pioneer Iron Works recently filed articles of incorporation with $25,000 capital and has taken over the Hermann Iron Works. The incorporators are Herman Galinsky, Abe Kaplan, I. Miller, Herman Miller and Paul Kaplan.

WATERLOO, IOWA.—The Waterloo Gasoline Engine Co. will build a 2-story foundry, 150 x 200 feet.

KANSAS CITY, MO.—The Mid-Continent Iron Co. has leased 1200 square feet of additional floor space.

KANSAS CITY, MO.—The Kansas City Light & Power Co., H. Blackwell, president, 1500 Grand avenue, will spend $5,500,000 for improvements.

SPRINGFIELD, MO.—The United Iron Works, Prospect and Mills streets, will build a machine shop costing $30,000. C. H. Cole, Kansas City, is president.

ST. LOUIS.—The powerhouse of the American Car & Foundry Co., 2800 DeKalb street, recently was damaged by fire.

ST. LOUIS.—The Bridge & Beach Mfg. Co., stove manufacturer, plans the erection of a 2-story addition to its plant.

ST. LOUIS.—A building which was occupied by the Oliver Oil Gas Burner & Machine Co., Inc., recently was damaged by fire.

ST. LOUIS.—The St. Louis Wire & Iron Co., Theodore R. Fiesler, president, 926 Chouteau avenue, will build a 2-story plant, 52 x 150 feet, to cost $35,000.

LITTLE ROCK, ARK.—The Galloway General Electric Co., capitalized at $50,000, has been chartered to equip and operate power plants by W. P. Galloway, M. R. Galloway and A. L. Howland.

DALLAS, TEX.—The Wyatt Metal & Boiler Works, W. J. Wyatt, president, 1817 Coombs street, which recently has increased its capital from $100,000 to $200,000, will build an addition costing $25,000.

HOUSTON, TEX.—The American Trailer & Body Co., J. H. Fleming, president, has bought a site on which to erect a factory.

SAN ANTONIO, TEX.—The Lone Star Truck & Tractor Co. will build a plant for the manufacture of tractors and motor trucks, 80 x 464 feet.

TEXARKANA, TEX. — The Deeming-Endsley Co., manufacturer of railroad switch safety devices, has filed articles of incorporation with $350,000 capital. The incorporators are Horace F. Endsley, V. D. Glass, H. M. Barney, O. P. Morrison, A. L. Knowles and Eugene Sanders.

TULSA, OKLA.—The Tulsa Boiler & Sheet Iron Works plans to equip a 100 x 100-foot extension to its main shop and is in the market for equipment.

DENVER.—The Denver Rock Drill Mfg. Co., Eighteenth and Blake streets, plan the erection of a 41 x 64-foot plant.

DENVER.—The Jackson Compressor Co., 235 South Cherokee street, will take bids soon for the erection of a 1-story electric furnace plant, which according to a report will be erected at a cost of $225,000.

NAMPA, IDAHO.—A modern iron foundry is to be erected here by J. B. Mant, Portland, according to A. W. Hoy of the Nampa Commercial Club.

PILOT ROCK, WASH.—The city recently purchased a site for an electric light plant.

SEATTLE.—The Puget Sound Machinery Depot, 318 First avenue, is having plans prepared for a 1-story, 44 x 100-foot temporary plate shop.

SEATTLE.—The Acme Machine Works recently was incorporated with $30,000 capital, by A. P. Williams, G. P. Risson and G. E. Adams.

SEATTLE.—An election will be held March 4 to issue $900,000 in bonds for a bridge over Western Waterway. A. D. Butler is city engineer.

SEATTLE.—The Pacific Construction & Engineering Co., 2910 Whatcom street, is reported to be planning the erection of a large shop addition, 22 x 24 feet.

ASTORIA, OREG.—The city plans a bond issue to provide for public improvements, which will include the erection of a power plant.

ASTORIA, OREG.—The Astoria Marine Iron Works has purchased four miles of water front, and plans to erect a plant, which will include a foundry, machine shop and a steel fabricating plant.

PORTLAND, OREG.—The American Marine Iron Works will soon start on the erection of a marine repair plant at St. Johns, which is estimated will

PORTLAND, OREG.—The Pacific Engineering & Equipment Co. has purchased the plant of the Standard Electro Galvanizing Co. and plans are under way for increasing the capacity of the plant at 448 Flanders street.

WELBRIDGE, OREG.—The Pacific Coast Steel Co., Northwest Bank building, Portland, is erecting an open-hearth building and a steel-mill building. Grant, Smith & Co. has the general contract.

FRESNO, CAL.—The Lisenby Mfg. Co., Kern Angus street, plans to erect a plant for the manufacture of tractors and agricultural implements.

FRESNO, CAL.—The Lisenby Mfg. Co., manufacturer of printing presses, contemplates the erection of a new plant.

LOS ANGELES.—The Paulsen Platform Tractor Co., capitalized at $500,000, has been chartered to manufacture engines and tractors by Thomas R. Paulsen, J. W. Johnson and S. S. Latz, Modesto, Cal.

Business in Canada

VICTORIA, B. C.—The Tudhope Electric Metals, Ltd., will build a smelting plant.

VICTORIA, B. C.—Hutchison Brothers & Co., Ltd., 409 Bay street, have let the contract for the erection of a foundry to cost $100,000 to the Cameron Investment & Securities Co., Central building.

GUELPH, ONT.—The Guelph Worsted Spinning Co., Ltd., plans the erection of an extension to cost $200,000 and is in the market for machinery.

GUELPH, ONT.—The Shinn Mfg. Co. of Canada, Ltd., has been incorporated with $50,000 capital to manufacture metal, wire, wire nails, etc., by H. C. Leggot and others.

HAMILTON, ONT.—The Gerrard Co., Ltd., has been incorporated to manufacture hardware and iron and steel products ,with $40,000 capital, by Arthur L. Reid, William W. Perry and Charles H. C. Leggott.

INGERSOLL, ONT.—The Ingersoll File Co., Ltd., has been incorporated to manufacture iron, steel, etc., with $500,000 capital, by James L. Ross, Arthur W. Holmsted and Albert R. Kinnear.

KITCHENER, ONT.—The Ontario Button Co., Ltd., has been incorporated to manufacture metal buttons, etc., with $40,000 capital, by Irvin Schroder, Edwin W. Clement, William P. Clement and others.

NIAGARA FALLS, ONT.—The plant of the National Abrasives Co., which recently was moved here from Hamilton, recently was damaged by fire.

OTTAWA, ONT.—Bids will be received until April 16 by the department of public works, for the erection of a steel bridge over the Ottawa river.

PEMBROKE, ONT.—Thomas Pink Co., Ltd., has been incorporated to do business as a founder, blacksmith and machinist, with $200,000 capital, by Thomas Pink, Edward A. Dunlop and William L. Hunter, all of Pembroke.

STRATFORD, ONT.—R. W. Lynn and A. J. Reiber of Chicago, Ill., recently made a survey of western Ontario, having in mind the location of a plant in the district for the manufacture of stoves.

ST. THOMAS, ONT.—The St. Thomas Metal Signs, Ltd., has been incorporated to manufacture metal signs, etc., with $30,000 capital, by James Stewart, John W. Jones and Margaret Ronan, of St. Thomas.

TORONTO, ONT.—The Perfection Flax Pulling Machines, Ltd., has been incorporated to manufacture harvesting machines with $500,000 capital by Henry J. Martin, Thomas N. Poole and Hector S. Johnston.

SYDNEY, N. S.—The Dominion Iron & Steel Co. has awarded the contract to the Foundation Co., Sydney, N. S., and Montreal, Que., for the erection of an electric plant to cost $1,000,000.

MONTREAL, QUE.—The Branson Auto Service plans the erection of a large garage to cost $50,000.

MONTREAL, QUE.—The Hyde Engineering Works, Ltd., has been incorporated to manufacture machinery, engines, tools, etc., with $100,000 capital, by William Taylor, J. P. Charbonneau and Ralph E. Alland.

MONTREAL, QUE.—Arrangements are being made for the installation of a steam-driven mining plant on the Canadian Kirkland property. This property was recently taken over by George E. Drummond, Montreal, and D. H. Angus, of the Right of Way Mines, Cobalt, Ont. Some electrically-driven machinery may be installed.

THREE RIVERS, QUE.—The St. Maurice Foundry Co., Ltd., has started work on an addition to its plant to cost about $10,000.

Iron and Steel Prices

Corrected to Tuesday Noon

Iron Ore

Superior Ores, Per Ton, Lower Lake Ports	
Old range Bessemer, 55 iron	$6.65
Mesabi Bessemer, 55 iron	6.40
Old range non-Bess., 51½ iron	5.90
Mesabi non-Bess., 51½ iron	5.75

Warehouse Prices

Steel bars, Chicago	3.97c
Steel bars, Cleveland	3.87c to 4.00c
Steel bars, Detroit	3.93c
Steel bars, Philadelphia	3.95c
Steel bars, New York	3.97c
Steel bars, St. Louis	4.04c
Steel bars, Cincinnati	3.93c
Steel bars, St. Paul	4.195c
Steel bars, Buffalo	3.915c
Iron bars, Buffalo	4.70c
Iron bars, Chicago	4.77c
Iron bars, Detroit	3.93c
Iron bars, St. Louis	4.04c
Iron bars, Cincinnati	3.93c
Iron bars, Philadelphia	4.30c
Iron bars, New York	4.57c
Shapes, Chicago	4.07c
Shapes, Detroit	4.03c
Shapes, St. Louis	4.14c
Shapes, St. Paul	4.295c
Shapes, New York	4.07c
Shapes, Cleveland	4.00c
Shapes, Philadelphia	4.05c
Shapes, Buffalo	4.015c
Shapes, Cincinnati	4.03c
Plates, Buffalo	4.215c
Plates, Chicago	4.27c
Plates, Detroit	4.23c
Plates, St. Louis	4.34c
Plates, St. Paul	4.605c
Plates, New York	4.27c
Plates, Cleveland	4.17c
Plates, Philadelphia	4.25c
Plates, Cincinnati	4.23c
No. 10 blue anl. sheets, Chicago	5.17c
No. 10 blue anl. sheets, Cleveland	5.00c
No. 10 blue anl., Buffalo	5.165c
No. 10 blue anl. sheets, St. L.	5.24c
No. 10 blue anl. sheets, Cincinnati	5.13c
No. 10 blue anl. sheets, St. Paul	5.395c
No. 10 blue anl. sheets, Detroit	5.13c
No. 28 black sheets, Chicago	6.22c
No. 28 black sheets, Cleveland	6.00c
No. 28 black sheets, Cincinnati	6.28c
No. 28 black, Detroit	6.28c
No. 28 black sheets, St. L.	6.29c
No. 28 black sheets, St. Paul	6.445c
No. 28 black Buffalo	6.165c
No. 28 galv. sheets, Chicago	7.57c
No. 28 galv. sheets, Cleveland	7.35c
No. 28 galv. sheets, Cincinnati	7.53c
No. 28 galvanized, Detroit	7.53c
No. 28 galv. sheets, St. L.	7.67c
No. 28 galv. sheets, Buffalo	7.515c

Iron and Steel Scrap

(Prices in Gross Tons)

STEEL WORKS USE

Bundled sheets, Cincinnati	$ 9.00 to 9.50
Bundled sheets, Pittsburgh	13.00 to 14.00
Bundled sheets, Cleveland	9.25 to 10.00
Bundled sheets, Buffalo	11.50 to 12.00
Boiler plate, cut, No. 1, Chicago	10.00 to 11.00
Boiler plate, cut, No. 1, St. Louis	10.00 to 10.50
Frogs, switches, guards, St. Louis	13.50 to 14.00
Frogs, switches, guards, Chicago	14.00 to 14.50
Heavy melting steel, Pittsburgh	16.00 to 17.00
Heavy melting steel, Buffalo	14.00 to 15.00
Heavy melting steel, Chicago	14.50 to 15.00
Heavy melting steel, Cleveland	14.25 to 15.00
Heavy melting steel, Cincinnati	15.00 to 15.50
Heavy melting steel, east. Pa.	15.00 to 16.00
Heavy melting steel, N. Y. (Deal.)	11.00 to 12.00
Heavy melting steel, St. L.	13.75 to 14.25
Heavy melting steel, Birmingham	13.00 to 14.00
Baled sheets, Cleveland	14.00 to 14.75
Baled sheets, Pittsburgh	14.00 to 15.00
Baled sheets, Chicago	11.50 to 12.00
Knuckles, couplers, Chicago	16.50 to 17.00
Knuckles, couplers, St. Louis	14.00 to 14.50
Low phos. steel, Buffalo	19.00 to 20.00
Low phos. steel, Pittsburgh	25.00
Low phos. crops, eastern Pa.	20.00
Low phos. guaranteed E. Pa.	20.00
Shoveling steel, Chicago	13.50 to 14.00
Shoveling steel, St. Louis	13.00 to 12.50
Steel rails, short, Cleveland	19.00 to 19.50
Steel rails, short, Chicago	16.50 to 17.00
Steel rails, short, St. Louis	14.00 to 14.50
Steel rails, old, Birmingham	14.00 to 16.00
Stove plate, Chicago	17.75 to 18.25
Stove plate, Cincinnati	13.00 to 13.50
Stove plate, St. Louis	11.00 to 11.50
Stove plate, N. J. pts. (Dealers')	17.50 to 18.00
Stove plate, Birmingham	14.00 to 15.00
Stove plate, Buffalo	17.00 to 18.00
Stove plate, eastern Pa.	18.00 to 20.00
Stove plate, Cleveland	13.00 to 14.00
Stove plate, Pittsburgh	15.00 to 16.00

Freight Rates, Pig Iron

Mahoning and Shenango valleys to:	
Cleveland	$1.40
Newark, N. J.	4.80
Boston	5.20
Philadelphia	4.40
Pittsburgh	1.40
St. Louis	4.60
Minneapolis, St. Paul	5.70
Buffalo to:	
Albany, N. Y.	$1.75
New England (rail)	3.90
New York and Brooklyn (rail)	3.90
Virginia furnaces to:	
Philadelphia	$4.10
New England	4.70
Brooklyn, Jersey City, Newark	4.40
Birmingham, Ala., to:	
Boston	$8.00
Cincinnati	3.60
Chicago	5.00
Cleveland	5.00
Louisville, Ky.	3.30
Minneapolis, St. Paul	7.30
New York	7.70
Philadelphia	6.50
Pittsburgh	5.70
Savannah, Ga.	3.40
St. Louis	4.25
Chicago to:	
Des Moines	$3.50
Minneapolis, St. Paul	2.50
Milwaukee	.60
Moline, Ill.	1.40
Omaha	4.50
St. Louis	1.90
Ironton and Jackson, O., to:	
Chicago	$2.80
Cincinnati	1.80
Cleveland	2.40
Detroit	2.60
Indianapolis	2.30
Minneapolis, St. Paul	5.70

Freight Rates, Finished Material

Pittsburgh, carloads, per 100 lbs., to:	
New York	27.0 cents
Philadelphia	24.5 cents
Boston	30.0 cents
Buffalo	21.5 cents
Baltimore	22.0 cents
Cleveland	17.0 cents
Cincinnati	23.0 cents
Chicago	27.0 cents
Detroit	23.0 cents
Minneapolis and St. Paul	49.5 cents
Denver	$1.09
St. Louis	33.5 cents
New Orleans	38.5 cents
Birmingham	57.5 cents
Pacific coast (all rail)	$1.25
Pacific coast (tin plate)	1.25

IRON MILL USE

Busheling, No. 1, Cleveland	14.50 to 15.00
Busheling, No. 1, Buffalo	13.00 to 14.00
Busheling, No. 1, Pittsburgh	14.00 to 15.00
Busheling, No. 1, Cincinnati	16.50 to 17.00
Busheling, No. 1, Chicago	14.00 to 14.50
Busheling, No. 2, Chicago	11.00 to 12.00
Busheling No. 1, St. Louis	14.00 to 14.50
Cast borings, New York (Dealers')	10.00
Cast borings, eastern Pa.	13.00 to 14.00
Cast borings, Buffalo	11.00 to 12.00
Cast borings, Cleveland	10.25 to 10.75
Cast borings, Cincinnati	8.00 to 9.00
Cast borings, Pittsburgh	11.00 to 12.00
Cast borings, Birmingham	8.00 to 10.00
Cast borings, Chicago	8.00 to 9.00
Cast borings, St. Louis	6.00 to 6.50
City wrought, long N. Y. (Deal'r)	15.00 to 16.00
Cut forge, Chicago	14.50 to 15.00
Forge No. 1, eastern Pa.	15.00 to 16.00
Forge flashings, large, Cleveland	10.00 to 11.00
Forge flashings, small, Cleveland	14.00 to 15.00
Grate bars, Buffalo	21.00 to 22.00
Grate bars, Cleveland	14.00 to 14.50
Grate bars, N. J. pts. (Deal'rs')	17.50 to 18.00
Iron axles, Pittsburgh	29.00
Iron axles, Cincinnati	24.50 to 25.00
Iron axles, Cleveland	25.00 to 26.00
Iron axles, Chicago	31.00 to 32.00
Iron axles, eastern Pa.	nominal
Iron axles, St. Louis	24.00 to 24.50
Iron axles, Buffalo	23.00 to 24.00
Iron rails, Chicago	21.00 to 22.00
Iron rails, Buffalo	21.00 to 22.00
Iron rails, Cincinnati	21.00 to 22.00
Iron rails, St. Louis	20.00 to 20.50
Iron rails, Cleveland	23.00 to 24.00
Machine turnings, Cincinnati	8.00 to 9.00
Machine turnings, Cleveland	7.75 to 8.25
Machine turnings, Buffalo	7.50 to 8.00
Machine turnings, N. Y. (Dealers')	8.00
Machine turnings, Pittsburgh	9.00 to 10.00
Machine turnings, east. Pa.	11.00 to 12.00
Machine turnings, Birmingham	8.00 to 10.00
Machine turnings, Chicago	5.50 to 6.00
Machine shop turnings, St. Louis	5.00 to 5.50
Pipes and flues, Cleveland	10.00 to 10.50
Pipes and flues, Chicago	12.50 to 13.00
Pipes and flues, St. Louis	11.50 to 12.00
R. R. mach. cast, No. 1, Buffalo	21.00 to 22.00
R. R. wgt. No. 1, Buffalo	27.00 to 28.00
R. R. wrgt. No. 1, east. Pa.	24.00 to 26.00
Railroad wrgt., No. 1, Cincinnati	18.50 to 19.00
Railroad wrgt., No. 1, Cleveland	16.00 to 17.50
R. R. wrought, No. 1, Pittsburgh	21.00 to 22.00
Railroad wrgt., No. 2, Chicago	14.50 to 15.00
Railroad wrought, No. 1, Chicago	16.00 to 16.50
R. R. wrought, No. 1, Birmingham	14.00 to 15.00
No. 1 yard wrought, eastern Pa.	19.00 to 20.00
No. 1 busheling wrgt., east. Pa.	16.00 to 18.00
Sheet wrought, Pittsburgh	21.00 to 22.00
Railroad wrgt., No. 1, St. Louis	15.00 to 15.50
Railroad wgt., No. 2, St. Louis	13.50 to 14.00
Wrought pipe, Buffalo	13.00 to 14.00
Wrought pipe, east. Pa.	18.00 to 20.00
Wrought pipe, ungraded, east. Pa.	12.00 to 13.00

IRON OR STEEL WORKS USE

Axle turnings, Cleveland	$14.00 to 15.00
Axle turnings, Buffalo	13.00 to 14.00
Heavy axle turnings, east. Pa.	nominal
Heavy axle turnings, Pitts.	13.00 to 14.00
Shafting, New York (Dealers')	17.00 to 18.00
Shafting, east. Pa.	27.00 to 29.00
Shafting, St. Louis	17.00 to 17.50
Steel car axles, Birmingham	18.00 to 23.00
Steel car axles, Pittsburgh	29.00
Steel car axles, N. Y. (Dealers')	22.00 to 23.00
Steel car axles, Buffalo	23.00 to 24.00
Steel car axles, Cleveland	25.00 to 26.00
Steel car axles, East. Pa.	nominal
Steel car axles, Chicago	22.00 to 23.00
Steel car axles, St. Louis	21.00 to 21.50

IRON FOUNDRY USE

Car wheels (iron), Pittsburgh	22.00 to 23.00
Car wheels (steel), Pittsburgh	21.00 to 22.00
Car wheels, East. Pa.	22.00 to 24.00
Car wheels, Buffalo	21.00 to 22.00
Car wheels, Chicago	20.50 to 21.50
Car wheels, St. Louis	20.50 to 21.00
Car wheels, Birmingham	15.00 to 16.00
Car wheels, Cleveland	18.00 to 19.00
Tram car wheels, Birmingham	18.00 to 20.00
Cast, No. 1, Birmingham	18.00 to 20.00
Cast, No. 1, cupola, east. Pa.	24.00 to 26.00
Cast, No. 1, Cleveland	20.50 to 21.00
Cast, No. 1, Cincinnati	18.00 to 18.50
Cast, 1, machy., N. Y. (Dealers')	20.00 to 21.00
Cast, 1, heavy, N. Y. (Dealers')	20.00 to 21.00
Cast, No. 1, Chicago	21.50 to 22.50
Cast, No. 1, Pittsburgh	20.00 to 21.00
Cast, No. 1, St. Louis R. R.	19.50 to 20.00
Malleable, Cincinnati	15.50 to 16.50
Malleable, Cleveland	17.00 to 17.50
Malleable, Buffalo	19.00 to 20.00
Malleable, Pittsburgh	16.00 to 17.00
Malleable, East. Pa.	nominal
Malleable, cupola, East. Pa.	nominal
Malleable, railroad, Chicago	16.00 to 16.50
Malleable, agricultural, Chicago	15.00 to 15.50
Malleable, railroad, St. Louis	12.50 to 13.00
Malleable, agricultural, St. Louis	11.00 to 11.50

MISCELLANEOUS USES

Boiler punchings, Chicago	18.00 to 19.00
Reroll. rails, 5 ft. and over, Pitts.	20.00 to 21.00
Reroll. rails 5 ft. and over, Chi.	15.00 to 15.50
Reroll. rails, 5 ft. and over, E. Pa.	17.00 to 18.00
Reroll. rails, 5 ft. and over, St. L.	14.00 to 14.50
Reroll. rails, 5 ft. or over, Cleve.	19.50 to 20.25
Rerolling rails, long, Birmingham	37.50 to 38.50
Locomotive tires, Chicago	17.00 to 18.00
Locomotive tires, St. Louis	14.00 to 14.50